

3PAR InForm[®] OS 2.2.4 Command Line Interface Reference

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1

Introduction

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This reference describes the 3PAR® InForm® Command Line Interface (CLI) commands that are used to administer and maintain the 3PAR InServ® Storage Server.

1.1 Audience

This reference is for system and storage administrators who monitor and direct system configurations and resource allocation for 3PAR InServ Storage Servers.

1.2 User Interfaces

Two user interfaces are offered as part of the 3PAR InForm® operating system: the 3PAR InForm Command Line Interface (CLI) and the 3PAR InForm Management Console graphical user interface. This manual discusses the InForm CLI. For information about the InForm Management Console, refer to the *3PAR InForm OS Management Console Online Help*.

The InForm CLI enables expert users to execute some advanced tasks not currently available through the InForm Management Console. See the *InForm OS CLI Administrator's Guide* for more information. The InForm CLI also enables you to configure 3PAR Remote Copy, see the *3PAR Remote Copy User's Guide* for more information.

1.3 Supported Operating Systems

The InForm CLI is supported on the following operating systems:

- Microsoft® Windows® 2000, Windows XP® Professional, Windows Server™ 2003, and Windows Server 2003 x64 Edition
- Sun™ Solaris™ 8, 9

1.4 Related Documentation

The following documents also provide information related to InServ Storage Servers and the InForm Operating System:

For Information About...	Read the...
Using the InForm Command Line Interface (CLI) to configure and administer InServ Storage Servers	<i>3PAR InForm OS CLI Administrator's Manual</i>
Using the InForm Management Console user interface to configure and administer InServ Storage Servers	<i>3PAR InForm OS Management Console Online Help</i>
Storage server hardware configurations, component numbering and layout, and system cabling	<i>3PAR InServ S-Class/T-Class Storage Server Physical Planning Manual</i> or the <i>3PAR InServ E-Class/F-Class Storage Server and Third-Party Rack Physical Planning Manual</i>
Identifying storage server components and detailed alert information	<i>3PAR InForm OS Messages and Operator's Guide</i>
Using 3PAR Remote Copy	<i>3PAR Remote Copy User's Guide</i>
Using 3PAR CIM	<i>3PAR CIM API Programming Reference</i>

1.5 Organization

This guide is organized as follows:

- [Chapter 1, *Introduction*](#) (this chapter), provides an overview of this reference, including information on audience, related documentation, and typographical conventions.
- [Chapter 2, *CLI Command Syntax and Conventions*](#), describes the standard syntax and conventions used by the InForm CLI.
- [Chapter 3, *Commands Quick Reference*](#), provides a list of the commands included in this reference, ordered by functionality.
- [Chapter 4, *Add Command*](#), provides the command used to add an SNMP manager.
- [Chapter 5, *Admit Commands*](#), describes the commands used to create and admit physical disks and virtual volumes into the system.
- [Chapter 6, *Cancel Command*](#), describes how to cancel a running task.
- [Chapter 7, *Check Commands*](#), presents the commands used to check the integrity of storage server resources.
- [Chapter 8, *CLI Command*](#), provides the general CLI command used to enter the interactive CLI shell.
- [Chapter 9, *Compact Commands*](#) presents the commands used to consolidate disk space.
- [Chapter 10, *Control Commands*](#), provides the commands used to control storage server components.
- [Chapter 11, *Create Commands*](#), describes the commands used to create new logical resources within the system (or the current service group) such as logical disks, hosts, and virtual volumes.
- [Chapter 12, *Dismiss Commands*](#), presents the commands used to remove physical disks from the system.
- [Chapter 13, *Free Command*](#), describes the command used to free snapshot administration and snapshot data spaces from a virtual volume.
- [Chapter 14, *Grow Commands*](#), describes the commands used to enlarge administration space.

- [Chapter 15, *Hist Commands*](#), includes the commands used to monitor existing service group resources.
- [Chapter 16, *Locate Commands*](#), provides the commands used to identify physical system resources.
- [Chapter 17, *Move Commands*](#), lists the commands used to relocate logical entities to various resources in the service group.
- [Chapter 18, *Promote Commands*](#), describes the commands used to copy snapshots to base volumes.
- [Chapter 19, *Remove Commands*](#), describes the commands used to remove logical resources (such as logical disks, hosts, and virtual volumes) from within the system or current service group.
- [Chapter 20, *Service Commands*](#), provides the commands used when replacing drive magazines and FCAL cards in the storage server.
- [Chapter 21, *Set Commands*](#), provides the commands used to set specific system parameters.
- [Chapter 22, *Show Commands*](#), presents commands used to display information and status for storage server hardware components.
- [Chapter 23, *Shutdown Commands*](#), covers the commands used to shut down entire clusters and nodes.
- [Chapter 24, *Start Commands*](#), provides the commands used to start 3PAR Remote Copy and the CIM service.
- [Chapter 25, *Stat Commands*](#), lists the commands used to display operational statistics for storage server hardware.
- [Chapter 26, *Stop Commands*](#), provides the commands used to stop 3PAR Remote Copy and the CIM service.
- [Chapter 27, *Sync Command*](#), covers the command used to synchronize Remote Copy volume groups.
- [Chapter 28, *Tune Commands*](#), provides the commands used to detect and rebalance physical disks with high service times.
- [Chapter 29, *Update Commands*](#), presents the commands used to update snapshot virtual volumes.

- [Chapter 30, Upgrade Commands](#), indicates the commands used to provide firmware upgrades to system components.
- [Chapter 31, Wait Command](#), provides information about the command for pausing a job.

This guide also contains an index and a revision history for your reference.

1.6 Typographical Conventions

The following typographical conventions are used in this guide:

Typeface	Meaning	Example
ABCDabcd	Used for dialog box elements such as titles and button labels.	Enter your system name in the Value box and click OK .
ABCDabcd	Used for system output and text you are to enter.	Enter <code>cli</code> at the Windows command prompt.

1.7 Advisories

To facilitate use of the InForm CLI, observe the notes and cautions used throughout this reference.



NOTE: Notes are reminders, tips, or suggestions that supplement the procedures included in this reference.



CAUTION: Cautions alert you to actions that can cause damage to equipment, software, or data.



WARNING: Warnings alert you to actions that can cause injury to people or irreversible damage to data or the operating system.

2

CLI Command Syntax and Conventions

In this chapter

2.1 Syntax and Conventions	2.2
2.2 Syntax Rules	2.3
2.3 Glob-Style Pattern	2.4
2.4 Typical Command Layout in this Book	2.5
2.5 Global Options and Environment Variables	2.6
2.6 Exit Status	2.6

This chapter describes the command syntax for the CLI commands listed in this reference. General control commands that do not follow the syntax rules are also listed. In addition, glob-style patterns, as used in the CLI, are discussed.

2.1 Syntax and Conventions

Most CLI commands use the following syntax. Commands that do not use this syntax are listed in *General Control and Help Commands* on page 3.5.

```
cmd subcmd [options [arg...]] <spec>... [<pattern>...]
```

[Table 2-1](#) lists all syntax elements and provides their meanings:

Table 2-1. CLI Command Syntax

Element	Meaning
cmd	Specifies an operation to be executed, such as <code>create</code> , <code>move</code> , or <code>show</code> .
subcmd	Specifies a subcommand. Subcommands specify actions for commands to be executed.
options	Indicates an optional command line element such as <code>histch -rw</code> .
arg	Indicates a specific variable of an option or subcommand. The argument is often used to identify a specific node, volume, or disk.
spec	Indicates a specifier used with a required command line element such as the command or option.
	Specifies that only one of the command specifiers or options separated by this character can be specified at a time.
{ }	Indicates grouped elements. Do not type the braces; type only the information inside the braces.
[]	Indicates optional elements. Do not type the brackets; type only the information inside the brackets.
< >	Indicates user-supplied input.
...	Indicates that a specifier or an option can be used more than once in a command.

2.2 Syntax Rules

The command syntax described in [Syntax and Conventions](#) on page 2.2 obeys the following rules:

- All command line elements are in lowercase letters, except where indicated in this reference.
- Subcommands immediately follow the commands they modify.
- Options, as indicated in this guide, are indicated by one or more letters, are preceded by a hyphen, and are enclosed in brackets (for example: `removealert [-a]`).
- Options follow subcommands on the command line and precede any specifier.
- An argument must directly follow the option or subcommand it is modifying and is required on the command line, unless otherwise specified (for example: `removealert -i <alert_ID>`).
- Multiple options and arguments on a command line are separated with a space.
- Specifiers follow options.
- User supplied input is identified by angled brackets (< >).
- Unless noted otherwise, valid character formats include alphanumeric characters, periods, dashes, and underscores. In general, the following length limits are enforced by the InForm CLI:
 - ◆ Virtual volume name 31 characters
 - ◆ Thinly Provisioned Virtual Volume (TPVV) name 31 characters
 - ◆ Virtual copy names 31 characters
 - ◆ Logical disk name 27 characters
 - ◆ Host name 31 characters
 - ◆ Common Provisioning Group (CPG) name 31 characters
 - ◆ Template name 31 characters

2.3 Glob-Style Pattern

Several of the commands in this reference allow a pattern to be specified to refine the output of the commands. The patterns are used to match against a string. Strings are typically names such as host or virtual volume names. For example, in the `showhost` `host_name|pattern...` command, a pattern can be specified to refine the command output for a string of host names matching the specified pattern.

The `pattern` specifier, as used in the CLI commands, is specified in the form of a glob-style pattern. Glob-style matching in the CLI is implemented by Tcl. A glob-style pattern consists of the symbols in the following table.

Symbol	Explanation of Action
*	Matches any sequence of characters in a string, including a null string.
?	Matches any single character in a string.
[chars]	Matches any character in the set given by chars. A range of chars can be specified using a dash (-). For example, [a-z] represents all the ASCII characters from a through z.
\x	Matches the single character x.

The following actions are practical examples of the glob-style pattern in use:

Example	Explanation of Action
*	Shows all names.
[a]*	Matches all names beginning with the letter a.
[a-z]x*	Matches any character a-z in the first character position and "x" in the second position, followed by any character "*".



NOTE: Brackets ([]) are significant in Tcl and must be escaped using a backslash (\) or enclosed in braces ({ }). Other characters such as star (*) are significant in most shells and must be escaped or quoted if running CLI commands from the shell.

2.4 Typical Command Layout in this Book

Typical CLI reference pages will be formatted similarly as the examples that follow.

COMMAND

This section includes the name of the CLI command.

DESCRIPTION

This section describes the use or purpose of the command.

AUTHORITY

This section defines the user access required within the InServ Storage Server to use the command.

SUBCOMMANDS

This section indicates any necessary subcommands required to complete the use of the command.

SYNTAX

See [Syntax and Conventions](#) on page 2.2.

OPTIONS

This section lists the available options you can use in conjunction with the command for varied results. Some options and their specifiers are required, as indicated in the syntax, whereas some are provided to increase the level and functionality of your output.

SPECIFIERS

Specifies a suggested input required by the user.

RESTRICTIONS

This section includes any restrictions that must be followed in order to achieve maximum results.

EXAMPLES

This section lists sample output with results similar to what you should expect when running the command and its available options.

NOTES

Any pertinent information about the command that might help increase understanding and reliability is often provided in the Notes section.

2.5 Global Options and Environment Variables

Several options and environment variables are available at the global level. For complete information about these, refer to the *InForm OS CLI Administrator's Manual*.

2.6 Exit Status

Except where noted, the following codes are returned indicating success or failure for each individual command:

- 0 indicates that the command was successful.
- 1 indicates that the command failed.

3

Commands Quick Reference

In this section

3.1 Overview	3.2
3.2 Disk Enclosure Management Commands	3.2
3.3 Domain Management Commands	3.3
3.4 Health and Alarm Management Commands	3.4
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3.1 Overview

The InForm CLI provides a host of commands allowing you to administer your InServ Storage Server. To facilitate your navigation through this manual, this section provides an overview of the commands grouped by functionality.

3.2 Disk Enclosure Management Commands

3.2.1 Drive Cage Management

Command	Description	Authority	For Details See
controlmag	Takes drives or magazines on or off loop.	Super, Service*	controlmag on page 10.5
locatecage	Locates a particular drive cage.	Service*	locatecage on page 16.2
setcage	Sets parameters for a drive cage.	Super, Service*	setcage on page 21.14
showcage	Displays drive cage information.	Super, Service, Edit, Browse	showcage on page 22.15

* You need access to all domains in order to run this command.

3.2.2 Physical Disk Management

Command	Description	Authority	For Details See
<code>admitpd</code>	Admits one or all physical disks to enable their use.	Service*	admitpd on page 5.4
<code>controlpd</code>	Spins physical disks up or down.	Super, Service*	controlpd on page 10.7
<code>dismisspd</code>	Dismisses one or more physical disks from use.	Service*	dismisspd on page 12.2
<code>setpd</code>	Marks physical disks as allocatable for logical disks.	Edit, Service*	setpd on page 21.49
<code>showpd</code>	Displays physical disks in the system.	Super, Edit, Service, Browse	showpd on page 22.77

* You need access to all domains in order to run this command.

3.3 Domain Management Commands

Command	Description	Authority	For Details See
<code>createdomain</code>	Shows a list of domains on the system.	Super*	createdomain on page 11.28
<code>movetodomain</code>	Moves objects from one domain to another.	Super*	movetodomain on page 17.12
<code>removedomain</code>	Removes an existing domain from the system.	Super*	removedomain on page 19.7

Command	Description	Authority	For Details See
setdomain	Sets the parameters and modifies the properties of a domain.	Super*	setdomain on page 21.31
showdomain	Displays the list of domains on a system.	Super, Service, Edit, Browse	showdomain on page 22.30

* You need access to all domains in order to run this command

3.4 Health and Alarm Management Commands

3.4.1 Alerts

Command	Description	Authority	For Details See
removealert	Removes one or more alerts.	Super, Service*	removealert on page 19.3
setalert	Sets the status of system alerts.	Super, Service*	setalert on page 21.3
showalert	Displays system alerts.	Super, Service, Edit, Browse	showalert on page 22.4

* You need access to all domains in order to run this command.

3.4.2 Events

Command	Description	Authority	For Details See
removeeventlog	Removes event logs.	Super*	removeeventlog on page 19.8
showeventlog	Displays event logs.	Super, Service, Edit, Browse	showeventlog on page 22.35

* You need access to all domains in order to run this command.

3.5 Help and Utility Commands

Command	Description	Authority	For Details See
cli	Provides a means to set up your CLI session or to enter directly into a CLI shell.	Super, Edit, Browse, Service	CLI Command on page 8.1
clihelp	Lists all commands or details for a specified command.	Super, Edit, Browse, Service	<i>General Control and Help Commands</i> on page 3.5
cmore	Pages the output of commands.	Super, Edit, Browse, Service	<i>General Control and Help Commands</i> on page 3.5
help	Lists all commands or details for a specified command.	Super, Edit, Browse, Service	<i>General Control and Help Commands</i> on page 3.5
setclienv	Sets the CLI environment parameters.	Edit, Browse, Service	setclienv on page 21.19
showclienv	Displays the CLI environment parameters.	Super, Service, Edit, Browse	showclienv on page 22.22

3.6 Task Management Commands

Command	Description	Authority	For Details See
<code>canceltask</code>	Cancels one or more tasks.	Super, Service, Edit	canceltask on page 6.2
<code>removetask</code>	Removes information about one or more tasks and their details.	Edit	removetask on page 19.23
<code>showtask</code>	Displays information about tasks.	Super, Service, Edit, Browse	showtask on page 22.148
<code>waittask</code>	Asks the CLI to wait for a task to complete before proceeding.	Super, Service, Edit, Browse	waittask on page 31.2

3.7 LDAP Management Commands

Command	Description	Authority	For Details See
<code>setauthparam</code>	Sets the authentication parameters.	Super	setauthparam on page 21.5
<code>showauthparam</code>	Shows authentication parameters and integrates the authentication and authorization features using LDAP.	Super	showauthparam on page 22.6
<code>checkpassword</code>	Supports authentication and authorization using LDAP.	Super*	checkpassword on page 7.4

* You need access to all domains in order to run this command.

3.8 Licensing Management Commands

Command	Description	Authority	For Details See
setlicense	Sets the license key.	Super, Service*	setlicense on page 21.36
showlicense	Displays the installed license info or key.	Super, Service, Edit, Browse	showlicense on page 22.62

* You need access to all domains in order to run this command.

3.9 Node Subsystem Management Commands

3.9.1 Firmware Versions

Command	Description	Authority	For Details See
showfirmwaredb	Displays a current database of firmware levels.	Super, Service, Edit, Browse	showfirmwaredb on page 22.39

3.9.2 Node Date Information

Command	Description	Authority	For Details See
setdate	Sets the system time and date on all nodes.	Super, Service*	setdate on page 21.27
showdate	Displays the date and time on all system nodes.	Super, Service, Edit, Browse	showdate on page 22.29

* You need access to all domains in order to run this command.

3.9.3 Node Properties

Command	Description	Authority	For Details See
setnode	Sets the properties of the node components such as the serial number of the power supply.	Super, Service*	setnode on page 21.43
shownode	Displays an overview of the node specific properties.	Super, Service, Edit, Browse	shownode on page 22.66
shownodeenv	Displays the node's environmental status.	Super, Service, Edit, Browse	shownodeenv on page 22.73

* You need access to all domains in order to run this command.

3.9.4 Node EEPROM Log

Command	Description	Authority	For Details See
showeeprom	Displays node EEPROM information.	Super, Service, Edit, Browse	showeeprom on page 22.32

3.9.5 Array and Node Information

Command	Description	Authority	For Details See
locatesys	Locates a system by blinking its LEDs.	Service*	locatesys on page 16.4

Command	Description	Authority	For Details See
<code>setsys</code>	Enables you to set system-wide parameters such as the raw space alert.	Super*	setsys on page 21.68
<code>showsys</code>	Displays an overview of the InServ system information, including the kernel version number, CPU speed, node name, node model, number of nodes, kernel build text (if any), and the CBIOS version.	Super, Service, Edit, Browse	showsys on page 22.139

* You need access to all domains in order to run this command.

3.9.6 Network Interface Configuration

Command	Description	Authority	For Details See
<code>setnet</code>	Sets the administration network interface configuration.	Super, Service*	setnet on page 21.38
<code>setntp</code>	Sets the NTP server to which the InServ Storage Server synchronizes.	Super, Service*	setntp on page 21.45
<code>shownet</code>	Displays the network configuration and status.	Super, Service, Edit, Browse	shownet on page 22.64

* You need access to all domains in order to run this command.

3.9.7 Port Information

Command	Description	Authority	For Details See
controlport	Controls Fibre Channel or Remote Copy ports.	Super, Service*	controlport on page 10.9
controliscsiport	Used to set up the parameters and characteristics of an iSCSI port.	Super, Service*	controliscsiport on page 10.2
showiscsisession	Shows the iSCSI active sessions per port.	Super, Service, Edit, Browse	showiscsisession on page 22.47
showport	Displays system port information.	Super, Service, Edit, Browse	showport on page 22.96
showportarp	Shows the ARP table for iSCSI ports in the system.	Super, Service, Edit, Browse	showportarp on page 22.105
showportdev	Displays detailed information about devices on a Fibre Channel port.	Super, Service, Edit, Browse	showportdev on page 22.107
showportisns	Show iSNS host information for iSCSI ports in the system.	Super, Service, Edit, Browse	showportisns on page 22.110

Command	Description	Authority	For Details See
showportlesb	Displays Link Error Status Block information about devices on a Fibre Channel port.	Super, Service, Edit, Browse	showportlesb on page 22.112
showtarget	Displays unrecognized targets.	Super, Service, Edit, Browse	showtarget on page 22.147

* You need access to all domains in order to run this command.

3.9.8 Battery Management

Command	Description	Authority	For Details See
setbattery	Sets battery properties.	Super, Service*	setbattery on page 21.12
showbattery	Displays battery status information.	Super, Service, Edit, Browse	showbattery on page 22.8

* You need access to all domains in order to run this command.

3.9.9 System Manager

Command	Description	Authority	For Details See
setsysmgr	Sets the system manager startup state.	Super*	setsysmgr on page 21.71
showsysmgr	Displays the system manager startup state.	Super, Service, Edit, Browse	showsysmgr on page 22.144

Command	Description	Authority	For Details See
showtoc	Displays the system table of contents summary.	Super, Service, Edit, Browse	showtoc on page 22.154
showtocgen	Displays the system table of contents generation number.	Super, Service, Edit, Browse	showtocgen on page 22.156

* You need access to all domains in order to run this command.

3.10 Performance Management Commands

3.10.1 Chunklet Statistics

Command	Description	Authority	For Details See
histch	Displays histogram data for individual chunklets.	Super, Service, Edit, Browse	histch on page 15.2
setstatch	Sets statistics collection mode on chunklets.	Edit	setstatch on page 21.65
setstatpdch	Sets statistics collection mode on physical disk chunklets.	Edit	setstatpdch on page 21.67
statch	Displays statistics for individual chunklets.	Super, Service, Edit, Browse	statch on page 25.2
statiscsi	Displays the iSCSI statistics.	Super, Service, Edit, Browse	statiscsi on page 25.12
statiscsisession	Displays the iSCSI session statistics.	Super, Service, Edit, Browse	statiscsisession on page 25.16

3.10.2 Data Cache Memory Statistics

Command	Description	Authority	For Details See
<code>statcmp</code>	Displays statistics for cache memory pages.	Super, Service, Edit, Browse	statcmp on page 25.8

3.10.3 Node CPU Statistics

Command	Description	Authority	For Details See
<code>statcpu</code>	Displays statistics for CPU use.	Super, Service, Edit, Browse	statcpu on page 25.10

3.10.4 Logical Disk Statistics

Command	Description	Authority	For Details See
<code>histld</code>	Displays histogram data for logical disks.	Super, Service, Edit, Browse	histld on page 15.6
<code>statld</code>	Displays statistics for logical disks.	Super, Service, Edit, Browse	statld on page 25.18

3.10.5 Link Statistics

Command	Description	Authority	For Details See
<code>statlink</code>	Displays statistics for links.	Super, Service, Edit, Browse	statlink on page 25.23

3.10.6 Physical Disk Statistics

Command	Description	Authority	For Details See
histpd	Displays histogram data for physical disks.	Super, Service, Edit, Browse	histpd on page 15.10
statpd	Displays statistics for physical disks.	Super, Service, Edit, Browse	statpd on page 25.25

3.10.7 Port Statistics

Command	Description	Authority	For Details See
histport	Displays histogram data for Fibre Channel ports.	Super, Service, Edit, Browse	histport on page 15.18
statport	Displays statistics for Fibre Channel ports.	Super, Service, Edit, Browse	statport on page 25.33

3.10.8 System Tuner

Command	Description	Authority	For Details See
<code>tunealdivv</code>	Allows the RAID and Availability characteristics of an existing Thin Provisioned Virtual Volume to be dynamically modified. See the InForm OS Administrator's Guide for a complete discussion of 3PAR System Tuner and the use of the <code>tunealdivv</code> command.	Super, Edit*	tunealdivv on page 28.2
<code>tunepd</code>	Displays physical disks with high service times and optionally performs load balancing.	Service*	tunepd on page 28.10
<code>tunetpvv</code>	Changes the layout of a Thinly Provisioned Virtual Volume (TPVV).	Edit	tunetpvv on page 28.15
<code>tunevv</code>	Changes the layout of a virtual volume.	Edit	tunevv on page 28.18

* You need access to all domains in order to run this command.

3.10.9 Virtual LUN (Export) Statistics

Command	Description	Authority	For Details See
<code>histvln</code>	Displays histogram data for VLUNs.	Super, Service, Edit, Browse	histvln on page 15.22
<code>statvln</code>	Displays statistics for VLUNs.	Super, Service, Edit, Browse	statvln on page 25.41

3.10.10 Virtual Volume Statistics

Command	Description	Authority	For Details See
histvv	Displays histogram data for virtual volumes.	Super, Service, Edit, Browse	histvv on page 15.27
statvv	Displays statistics for virtual volumes.	Super, Service, Edit, Browse	statvv on page 25.47

3.11 Preserved Data Commands

Command	Description	Authority	For Details See
showpdata	Displays preserved data status.	Super, Service, Edit, Browse	showpdata on page 22.88

3.12 Replication Commands

3.12.1 Physical Copy

Command	Description	Authority	For Details See
<code>creategroupvvcopy</code>	Creates consistent group physical copies of a list of virtual volumes.	Super, Edit	creategroupvvcopy on page 11.31
<code>createvvcopy</code>	Copies a virtual volume.	Super, Edit	createvvcopy on page 11.68
<code>promotevvcopy</code>	Promotes a physical copy back to a base volume.	Super, Edit	promotevvcopy on page 18.4

3.12.2 Remote Copy



NOTE: Functionality of 3PAR Remote Copy requires the 3PAR Remote Copy license. See the 3PAR InForm OS Concepts Guide, Chapter 2 for additional information.

Command	Description	Authority	For Details See
<code>admitrcopylink</code>	Admits a network link for Remote Copy use.	Service*	admitrcopylink on page 5.6
<code>admitrcopyvv</code>	Admits a virtual volume to a Remote Copy volume group.	Service*	admitrcopyvv on page 5.8
<code>createrecopygroup</code>	Creates a group for Remote Copy.	Super, Edit	createrecopygroup on page 11.40

Command	Description	Authority	For Details See
<code>creatercopytarget</code>	Creates a target for Remote Copy.	Super, Edit*	creatercopytarget on page 11.42
<code>dismissrcopylink</code>	Dismisses a network link from Remote Copy use.	Service*	dismissrcopylink on page 12.3
<code>dismissrcopyvv</code>	Dismisses a virtual volume from a Remote Copy volume group.	Service*	dismissrcopyvv on page 12.5
<code>removercopygroup</code>	Removes a group used for Remote Copy.	Edit	removercopygroup on page 19.13
<code>removercopytarget</code>	Removes a target used for Remote Copy.	Edit*	removercopytarget on page 19.15
<code>setrcopygroup</code>	Sets the volume group's policy for dealing with I/O failure and error handling, or switches the direction of a volume group.	Edit	setrcopygroup on page 21.51
<code>setrcopytarget</code>	Sets the Remote Copy target state.	Edit*	setrcopytarget on page 21.57
<code>showrcopy</code>	Displays the details of a Remote Copy configuration.	Super, Service, Edit, Browse	showrcopy on page 22.118

Command	Description	Authority	For Details See
<code>showrcrtransport</code>	Shows status and information about end-to-end transport for Remote Copy in the system.	Super, Service, Edit, Browse	showrcrtransport on page 22.123
<code>startrcopy</code>	Starts a Remote Copy subsystem.	Super, Edit*	startrcopy on page 24.4
<code>startcopygroup</code>	Starts a Remote Copy volume group.	Super, Edit	startcopygroup on page 24.5
<code>statrcopy</code>	Displays Remote Copy statistics.	Super, Service, Edit, Browse	statrcopy on page 25.38
<code>stoprcopy</code>	Stops a Remote Copy subsystem.	Super, Edit*	stoprcopy on page 26.3
<code>stopcopygroup</code>	Stops a Remote Copy volume group.	Super, Edit	stopcopygroup on page 26.5
<code>syncrcopy</code>	Synchronizes Remote Copy volume groups.	Super, Edit	syncrcopy on page 27.2

* You need access to all domains in order to run this command.

3.12.3 Virtual Copy

Command	Description	Authority	For Details See
<code>createsv</code>	Creates snapshot volumes.	Super, Edit	createsv on page 11.46
<code>creategroupsv</code>	Creates consistent group snapshots of a list of virtual volumes.	Super, Edit	creategroupsv on page 11.29
<code>promotesv</code>	Copies the differences of a virtual copy back to its base volume.	Super, Edit	promotesv on page 18.2
<code>updatevv</code>	Updates a snapshot virtual volume with a new snapshot.	Super, Edit	updatevv on page 29.4

3.13 Service Commands

3.13.1 Disk Enclosure

Command	Description	Authority	For Details See
<code>admithw</code>	Admits new hardware into the system.	Service [*]	admithw on page 5.2
<code>servicecage</code>	Prepares a drive cage for service.	Service [*]	servicecage on page 20.2
<code>servicehost</code>	Prepares a port for host attachment.	Service [*]	servicehost on page 20.5
<code>servicemag</code>	Prepares a drive magazine for service.	Service [*]	servicemag on page 20.8

Command	Description	Authority	For Details See
upgradecage	Upgrades drive cage firmware.	Service*	upgradecage on page 30.2
upgradedpd	Upgrades disk firmware.	Service*	upgradedpd on page 30.4

* You need access to all domains in order to run this command.

3.13.2 General System Maintenance

Command	Description	Authority	For Details See
shutdownnode	Shuts down an individual system node.	Service*	shutdownnode on page 23.2
shutdownsys	Shuts down the entire system.	Service*	shutdownsys on page 23.4

3.13.3 System Upgrade

Command	Description	Authority	For Details See
showpatch	Displays patches applied to a system.	Super, Service, Edit, Browse	showpatch on page 22.75
showversion	Displays software versions.	Super, Service, Edit, Browse	showversion on page 22.162

3.14 SNMP Agent Commands

Command	Description	Authority	For Details See
<code>addsnmpmgr</code>	Adds an SNMP manager to receive trap notifications.	Service*	addsnmpmgr on page 4.2
<code>removesnmpmgr</code>	Removes an SNMP trap manager.	Super*	removesnmpmgr on page 19.16
<code>removesnmppw</code>	Removes an SNMP password.	Super*	removesnmppw on page 19.18
<code>setsnmppw</code>	Allows users to update SNMP passwords.	Super*	setsnmppw on page 21.61
<code>showsnmpmgr</code>	Displays SNMP trap managers.	Super, Service, Edit, Browse	showsnmpmgr on page 22.130
<code>showsnmppw</code>	Displays SNMP access passwords.	Super, Service, Edit, Browse	showsnmppw on page 22.128

* You need access to all domains in order to run this command.

3.15 CIM Server Commands

Command	Description	Authority	For Details See
<code>setcim</code>	Sets the properties of the CIM server, including options to enable or disable the HTTP and HTTPS ports for the CIM server.	Super, Service*	setcim on page 21.16
<code>showcim</code>	Displays the CIM server current status, either active or inactive.	Super, Service, Edit, Browse	showcim on page 22.20
<code>startcim</code>	Starts the CIM server to service CIM requests.	Service*	startcim on page 24.2
<code>stopcim</code>	Stops the CIM server from servicing CIM requests.	Service*	stopcim on page 26.2

* You need access to all domains in order to run this command.

3.16 Sparing Commands

Command	Description	Authority	For Details See
<code>createspare</code>	Creates spare chunklets.	Edit, Service*	createspare on page 11.44
<code>movech</code>	Moves specified chunklets.	Super, Service, Edit*	movech on page 17.2
<code>movechtospare</code>	Moves specified chunklets to spare.	Super, Service, Edit*	movetodomain on page 17.12

Command	Description	Authority	For Details See
<code>movepdtospare</code>	Moves specified physical disks to spare.	Super, Service, Edit*	movepdtospare on page 17.7
<code>moverelocpd</code>	Moves chunklets relocated from a physical disk to another physical disk.	Super, Service, Edit*	moverelocpd on page 17.9
<code>removespare</code>	Removes spare chunklets.	Edit, Service*	removespare on page 19.20
<code>showspare</code>	Displays information about spare and relocated chunklets.	Super, Service, Edit, Browse	showspare on page 22.136

* You need access to all domains in order to run this command.

3.17 SSH Access Commands

Command	Description	Authority	For Details See
<code>setsshkey</code>	Sets the SSH public key for users enabling login without a password.	Service	setsshkey on page 21.63
<code>removesshkey</code>	Removes a user's SSH public key.	Service	removesshkey on page 19.22

3.18 User Management Commands

Command	Description	Authority	For Details See
<code>createuser</code>	Creates user accounts.	Super [*]	createuser on page 11.59
<code>removeuser</code>	Removes user accounts.	Super [*]	removeuser on page 19.27
<code>removeuserconn</code>	Removes user connections.	Super [*]	removeuserconn on page 19.29
<code>setpassword</code>	Changes your password.	Super, Edit, Service Browse [†]	setpassword on page 21.47
<code>setuser</code>	Sets your user properties.	Browse	setuser on page 21.76
<code>setuseracl</code>	Sets your Access Control List (ACL).	Edit	setuseracl on page 21.78
<code>showuser</code>	Displays user accounts.	Super, Service, Edit, Browse	showuser on page 22.157
<code>showuseracl</code>	Displays your Access Control List (ACL).	Super, Service, Edit, Browse	showuseracl on page 22.159
<code>showuserconn</code>	Displays user connections.	Super, Service, Edit, Browse	showuserconn on page 22.160

* You need access to all domains in order to run this command.

† Only the Super User can edit other user's passwords.

3.19 Volume Management Commands

3.19.1 Common Provisioning Group Management

Command	Description	Authority	For Details See
<code>createcpg</code>	Creates a Common Provisioning Group (CPG).	Super, Edit*	createcpg on page 11.21
<code>removecpg</code>	Removes CPGs.	Super, Edit*	removecpg on page 19.5
<code>setcpg</code>	Changes the properties CPGs.	Super, Edit*	setcpg on page 21.21
<code>showcpg</code>	Displays CPGs.	Super, Service, Edit, Browse	showcpg on page 22.23

* You need access to all domains in order to run this command.

3.19.2 Host Management

Command	Description	Authority	For Details See
<code>createhost</code>	Creates host and host path definitions.	Super, Edit*	createhost on page 11.34
<code>removehost</code>	Removes host definitions from the system.	Super, Edit*	removehost on page 19.9

Command	Description	Authority	For Details See
<code>showhost</code>	Displays defined hosts in the system.	Super, Service, Edit, Browse	showhost on page 22.43
<code>sethost</code>	Sets properties on existing system hosts, including options to annotate a host with descriptor information such as physical location, IP address, operating system, model, and so on.	Super, Edit*	sethost on page 21.33

* You need access to all domains in order to run this command.

3.19.3 Logical Disk Management

Command	Description	Authority	For Details See
<code>checkld</code>	Performs validity checks of data on logical disks.	Service*	checkld on page 7.2
<code>createald</code>	Automatically creates logical disks.	Super, Edit*	createald on page 11.3
<code>createld</code>	Creates logical disks.	Super, Edit*	createld on page 11.37
<code>removeld</code>	Removes logical disks.	Edit*	removeld on page 19.11
<code>showld</code>	Displays logical disks.	Super, Service, Edit, Browse	showld on page 22.49
<code>startld</code>	Starts logical disks.	Service*	startld on page 24.3

* You need access to all domains in order to run this command.

3.19.4 Space and Storage Management

Command	Description	Authority	For Details See
showblock	Displays block mapping information for virtual volumes, logical disks, and physical disks.	Super, Service, Edit, Browse	showblock on page 22.12
showldch	Displays logical disk to physical disk chunklet mapping.	Super, Service, Edit, Browse	showldch on page 22.55
showldmap	Displays logical disk to virtual volume mapping.	Super, Service, Edit, Browse	showldmap on page 22.60
showpdch	Displays the status of selected chunklets of physical disks.	Super, Service, Edit, Browse	showpdch on page 22.89
showpdvv	Displays physical disk to virtual volume mapping.	Super, Service, Edit, Browse	showpdvv on page 22.95
showspace	Displays estimated free space.	Super, Service, Edit, Browse	showspace on page 22.132
showvvmap	Displays virtual volume to logical disk mapping.	Super, Service, Edit, Browse	showvvmap on page 22.178
showvvpd	Displays virtual volume distribution across physical disks.	Super, Service, Edit, Browse	showvvpd on page 22.180

3.19.5 Template Management

Command	Description	Authority	For Details See
<code>createtemplate</code>	Creates templates for the creation of logical disks, virtual volumes, thinly provisioned virtual volumes, and common provisioning groups.	Super, Edit*	createtemplate on page 11.48
<code>removetemplate</code>	Removes one or more templates.	Super*	removetemplate on page 19.25
<code>settemplate</code>	Modifies template properties.	Super*	settemplate on page 21.74
<code>showtemplate</code>	Displays existing templates.	Super, Service, Edit, Browse	showtemplate on page 22.152

* You need access to all domains in order to run this command.

3.19.6 Virtual Volume Management

Command	Description	Authority	For Details See
<code>checkvv</code>	Performs validity checks of virtual volume administrative information.	Service*	checkvv on page 7.11
<code>createaldvv</code>	Automatically creates virtual volumes and their underlying logical disks.	Super, Edit*	createaldvv on page 11.9
<code>createavv</code>	Automatically creates virtual volumes.	Super, Edit*	createavv on page 11.17

Command	Description	Authority	For Details See
<code>createtpvv</code>	Creates a TPVV.	Super, Edit	createtpvv on page 11.56
<code>createvv</code>	Creates a virtual volume from logical disks.	Super, Edit with logical disks specified*	createvv on page 11.64
<code>freespace</code>	Frees SA and SD spaces from a virtual volume if they are not in use.	Super, Edit	freespace on page 13.2
<code>growaldvv</code>	Automatically increases the size of a virtual volume and its underlying logical disks.	Super, Edit*	growaldvv on page 14.2
<code>growavv</code>	Automatically increases the size of a virtual volume.	Super, Edit*	growavv on page 14.9
<code>growtpvv</code>	Enlarges a thin provisioning virtual volume.	Super, Edit	growtpvv on page 14.11
<code>growvv</code>	Increases the size of a virtual volume by adding logical disks.	Super, Edit with logical disks specified*	growvv on page 14.13
<code>removevv</code>	Removes virtual volumes or logical disks from common provisioning groups.	Super, Edit	removevv on page 19.33
<code>setvv</code>	Modifies properties associated with a virtual volume.	Edit	setvv on page 21.80

Command	Description	Authority	For Details See
<code>showrsv</code>	Displays information about reservation and registration of VLUNs connected on a Fibre Channel port.	Super, Service, Edit, Browse	showrsv on page 22.126
<code>showvv</code>	Displays virtual volumes in the system.	Super, Service, Edit, Browse	showvv on page 22.169
<code>startvv</code>	Starts virtual volumes.	Service*	startvv on page 24.7
<code>updatesnapspace</code>	Starts a task to update the actual snapshot space used by a virtual volume.	Super, Edit	updatesnapspace on page 29.2

* You need access to all domains in order to run this command.

3.19.7 Virtual LUN (Export) Management

Command	Description	Authority	For Details See
<code>checkpd</code>	Executes surface scans on physical disks.	Service*	checkpd on page 7.6
<code>checkport</code>	Performs a loopback test on Fibre Channel ports.	Service*	checkport on page 7.9
<code>compactcpg</code>	Consolidates logical disk space in a CPG into as few logical disks as possible, allowing unused logical disks to be removed.	Super, Edit	compactcpg on page 9.2
<code>compactld</code>	Consolidates space on the logical disks.	Super, Edit	compactld on page 9.4

Command	Description	Authority	For Details See
<code>createvln</code>	Creates a virtual volume as a SCSI LUN.	Super, Edit	createvln on page 11.61
<code>removevln</code>	Removes VLUNs.	Super, Edit	removevln on page 19.31
<code>showvln</code>	Displays VLUNs in the system.	Super, Service, Edit, Browse	showvln on page 22.164

* You need access to all domains in order to run this command.

4

Add Command

In this chapter

`addsnmpmgr`

4.2

COMMAND

`addsnmpmgr`

DESCRIPTION

The `addsnmpmgr` command adds an SNMP manager to receive trap notifications.

SYNTAX

`addsnmpmgr [options <arg>] <host_IP_address>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-p <port_number>`

Specifies the port number where the SNMP manager receives traps. This option is used if the port number differs from the default of 162.

`-pw <password>`

Specifies the SNMP manager's access community string (password), using up to 32 alphanumeric characters. If not specified, the agents send traps without an access password.

`-r <retry>`

Specifies the number of times to send a trap (`retry`) if the SNMP manager is not available (an integer from 1 through 15). If not specified, the number of times a trap is sent defaults to 2.

`-t <timeout>`

Specifies the number of seconds to wait before sending a trap (`timeout`) using an integer from 1 through 300. If not specified, the time defaults to 200 seconds.

SPECIFIERS

<host_IP_address>

Specifies the IP address of the host where the manager runs. Valid syntax is a.b.c.d, where a, b, c, and d are integers from 0 through 255.

RESTRICTIONS

You can add a maximum of 10 SNMP managers with this command.

EXAMPLES

The following example displays the addition of SNMP manager to the host IP address 123.45.67.89 with the assigned password of alpha1:

```
cli% addsnmpmgr -pw alpha1 123.45.67.89
```

NOTES

- The InServ Storage Server does not support any form of name resolution. You must specify these IP addresses directly.
- Issue the `showsnmpmgr` command to display the list of registered SNMP managers.
- Issue the `setsnmpw` command to change the SNMP passwords.
- Issue the `removesnmpw` command to remove SNMP passwords.
- Issue the `removesnmpmgr` command to remove SNMP managers. See [removesnmpmgr](#) on page 19.16 for additional information.

5

Admit Commands

In this chapter

admithw	5.2
admitpd	5.4
admitrcopylink	5.6
admitrcopyvv	5.8

COMMAND

`admithw`

DESCRIPTION

The `admithw` command admits new hardware into the system.

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

SYNTAX

`admithw [options]`

OPTIONS

`-checkonly`

Only performs passive checks; does not make any changes.

`-f`

If errors are encountered, the `admithw` command ignores them and continues. The messages remain displayed.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays a passive check of the system:

```
cli% admithw -checkonly
Checking nodes...

Checking volumes...

Checking system LDs...

Checking ports...

Checking state of disks...

Checking cabling...

Check complete.
```

NOTES

- The `admithw` command handles any nodes, disks, or cages that have been added into the system.
- In addition to verifying that all expected hardware is present, the `admithw` command handles all checks, including valid states, cabling, and firmware revisions.
- The `admithw` command also handles creating system logical disks while adding and rebalancing spare chunklets.
- Spares are allocated according to the algorithm specified by the `Sparing Algorithm` system parameter.

COMMAND

`admitpd`

DESCRIPTION

The `admitpd` command creates and admits physical disk definitions to enable the use of those disks.

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

SYNTAX

```
admitpd [option] [<world-wide_name>...]
```

OPTIONS

`-nold`

Do not use the physical disk (as identified by the WWN specifier) for logical disk allocation. See [Notes](#) on page 5.5 for more information about the `-nold` option.

SPECIFIERS

```
[<world-wide_name>...]
```

Indicates the World-Wide Name (WWN) of the physical disk to be admitted. If WWNs are specified, only the specified physical disk(s) are admitted. Otherwise, all available physical disks are admitted.

RESTRICTIONS

If multiple WWNs are specified and not all can be admitted, the `admitpd` command fails.

EXAMPLES

The following example admits physical disks in a 20-disk system:

```
cli% admitpd
20 disks admitted
```

NOTES

- Physical disks cannot be used by the InForm operating system for storage until they are admitted into the system.
- Specify the `-nold` option when adding a physical disk to replace a failed disk, whose chunklets were moved to spare space. Specifying `-nold` prevents the allocation of the newly added physical disk and allows chunklets to be moved back to the new disk. After chunklets have been moved back to the new disk, the administrator can allow logical disks to be allocated again by issuing the `setpd` command.
- Verify the admittance of physical disk definitions by issuing the `showpd` command. See [showpd](#) on page 22.77.
- If no WWN is specified or if all the specified WWNs are admitted, the command succeeded. If all the specified WWNs could not be admitted, the command fails.

COMMAND

admitrcopylink

DESCRIPTION

The `admitrcopylink` command adds one or more links (connections) to a Remote Copy target system.

SYNTAX

- For Remote Copy over IP (RCIP), the syntax for the `admitrcopylink` command is as follows:

```
admitrcopylink <target_name> <node:IP_address>...
```

- For Remote Copy over fibre channel (RCFC), the syntax for the `admitrcopylink` command is as follows:

```
admitrcopylink <target_name> <N:S:P:WWN>...
```

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

<target_name>

The target name, as specified with the `creatercopytarget` command (see [creatercopytarget](#) on page 11.42).

<node:IP_address>...

Specifies the node of the Ethernet port on the local system and a IP address on the target system.

<N:S:P:WWN> . . .

Specifies the node, slot, and port of the Fibre Channel port on the local system and a World Wide Name (WWN) address on the target system.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example adds a link on `System2` (targetname), node 1. The IP address 193.1.2.11 specifies the address on the target system:

```
cli% admitrcopylink System2 1:193.1.2.11
```

NOTES

- See the *Remote Copy User's Guide* for more examples.
- This command concludes by returning a list of one or more links to be admitted.
- For IP targets, this list is made up of pairs composed of the node containing the Ethernet port on the local systems and an IP address on the target system.
- For Fibre Channel targets, this list is made up of sets with the node, slot, and port of the fibre channel port on the local system and a WWN on the target system.

COMMAND

admitrcopyvv

DESCRIPTION

The `admitrcopyvv` command adds an existing virtual volume to an existing Remote Copy volume group.

SYNTAX

```
admitrcopyvv <VV_name> <group_name> <target_name>:<sec_VV_name>
```

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

<VV_name>

Specifies the name of the existing virtual volume to be admitted to an existing Remote Copy volume group that was created with the `creatercopygroup` command (see [page 11.40](#)).

<group_name>

Specifies the name of the existing Remote Copy volume group created with the `creatercopygroup` command (see [page 11.40](#)), to which the volume will be added.

<target_name>:<sec_VV_name>

The target name associated with this group, as set with the `creatercopygroup` command (see [page 11.40](#)). The target is created with the `creatercopytarget` command (see [page 11.42](#)). <sec_VV_name> specifies the name of the secondary volume on the target system.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

In the following example, the `admitrcopyvv` command adds the volume `vv1` to the primary volume group `Group1`. At the same time, it adds the volume on the target system `InServ1_in` to the corresponding secondary volume group `Group1.r<sys_ID>` that was previously created by issuing the `creatercopygroup` command:

```
cli% admitrcopyvv vv1 Group1 InServ1_in:Group1.r<sys_ID>
```

NOTES

- A secondary volume mapping must be provided for each target in the group.
- If a group's target has the `mirror_config` policy set and the group is a primary group, then this command is mirrored to that target and the volume is added to the secondary volume group. If the policy is set and the group is a secondary, this command fails.

6

Cancel Command

In this chapter

`canceltask`

6.2

COMMAND

canceltask

DESCRIPTION

The canceltask command cancels one or more tasks.

SYNTAX

canceltask [-f] all | <task_ID>...

AUTHORITY

Super, Service, Edit

OPTIONS

-f

Forces the command. The command completes the process without prompting for confirmation.

SPECIFIERS

all

Cancels all active tasks. If not specified, a task ID(s) must be specified.

<task_ID>...

Cancels only tasks identified by their task IDs. If not specified, all tasks are cancelled.

RESTRICTIONS

None.

EXAMPLES

The following example shows how to cancel a task using the task ID:

```
cli% canceltask 1
Are you sure you want to cancel task 1?
select q=quit y=yes n=no: y
```

NOTES

- See the *3PAR InForm OS CLI Administrator's Manual* for additional information and examples regarding task management and task management commands.
- The `canceltask` command can return before a cancellation is completed. Thus, resources reserved for a task might not be immediately available. This can prevent actions like restarting the canceled task. Use the `waittask` command to ensure orderly completion of the cancellation before taking other actions. See [waittask](#) on page 31.2 for details.
- The `-restart` option associated with the `tunealdivv` command enables you to resume a canceled `tunealdivv` task. See [tunealdivv](#) on page 28.2 for more information.

7

Check Commands

In this chapter

checkId	7.2
checkpassword	7.4
checkpd	7.6
checkport	7.9
checkvv	7.11

COMMAND

checkld

DESCRIPTION

The `checkld` command executes consistency checks of data on logical disks in the event of an uncontrolled system shutdown and optionally repairs inconsistent logical disks.

SYNTAX

`checkld [options] <LD_name>...`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-y|-n`

Specifies that if errors are found they are either modified so they are valid (`-y`) or left unmodified (`-n`). If not specified, errors are left unmodified (`-n`).

SPECIFIERS

`<LD_name>...`

Requests that the integrity of a specified logical disk is checked. This specifier can be repeated to execute validity checks on multiple logical disks.

RESTRICTIONS

The `checkld` command should not be issued for logical disks that have been started because it can return incorrect mismatches.

EXAMPLES

The following example displays a validity check of logical disk `vv63.admn.0`:

```
cli% checkld -n vv63.adm.0
Performing a consistency check only (no repairs)
Working on ld vv63.adm.0 (955)
compare:/dev/tpddev/pd/33 0x2180000 with:/dev/tpddev/pd/11 0x2180000 1 of 1
Logical disk vv63.adm.0 Check completed, logical disk consistent
```

NOTES

- Repairing logical disks refers to making logical disks consistent.
- Consistency for RAID 1 means that all mirrors in the set have the same data.
- Consistency for RAID 5 means that parity is consistent with the data in the set.
- `checkld -n` can be issued at any time as it is only reading from the logical disk. If this command is issued for a started logical disk, false negative errors can be reported because of the contents of the physical disks changing during I/O and the difference in mirror update time.
- `checkld -y` can only be issued when the logical disk is in the `not started` state.

COMMAND

checkpassword

DESCRIPTION

The `checkpassword` command displays authentication and authorization details using LDAP. This command is used to display the details of how the system authenticates a user and determines a user's privilege level. Given the number of parameters that can be set with the `setauthparam` command and the various ways authentication might fail from incorrectly set parameters, the `checkpassword` command is valuable for debugging authentication failures.

SYNTAX

checkpassword [<user>]

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

SPECIFIER

<user>

If the <user> parameter is not specified, then the current user is used.

RESTRICTIONS

Only those users with Super privileges can specify <user> names other than their own.

EXAMPLES

The following example displays the authentication and authorization of user User1:

```
cli% checkpassword User1
password:
+ attempting authentication and authorization using system-local data
user User1 is authenticated and authorized
```

- The output of the `checkpassword` command is a series of information statements, each starting with a (+) that indicates the steps the system is using to authenticate the user and determine the privilege level.

- The last line of output shows the summary of the steps with the user either being unauthenticated or authenticated and authorized.

NOTES

- The output of the `checkpassword` command is based on current authentication and authorization parameters and might differ from the user's actual authorization level if the `setauthparam` command has been used to change parameters or data in the LDAP server has changed since the user last logged in.
- The `showuserconn` command can be used to verify the authorization levels assigned at login.

COMMAND

checkpd

DESCRIPTION

The `checkpd` command executes surface scans or diagnostics on physical disks.

SYNTAX

`checkpd scrub|diag [options <arg>] <pd_ID>...`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

The following options can only be used with the `scrub` specifier:

`-ch <number>`

To scan a specific chunklet rather than the entire disk.

`-count <number>`

To scan a number of chunklets starting from `-ch`.

The following options can only be used with the `diag` specifier:

`-path <p>`

Specifies a physical disk path as `a`, `b`, `both`, or `system`.

`-test <type>`

Specifies read, write, or verify test diagnostics. If no type is specified, the default is read.

`-iosize <size>`

Specifies I/O size, valid ranges are from 1s to 1m. If no size is specified, the default is 128k.

`-threads <num>`

Specifies of I/O threads, valid ranges are from 1 to 4. If the number of threads is not specified, the default is 1.

`-time <secs>`

Indicates the number of seconds to run, from 1 to 36000.

`-total <size>`

Indicates total bytes to transfer per disk. If a size is not specified, the default size is 1g.

`-retry <number>`

Specifies the total number of retries on an I/O error. If the number of retries is not specified, the default is 4.

`-range <size>`

Limits diagnostic regions to a specified size, from 2m to 2g.

SPECIFIERS

`scrub`

Scans one or more chunklets for media defects.

`diag`

Performs read, write, or verifies test diagnostics.

`<pd_ID>...`

The ID of the physical disk to be checked.

RESTRICTIONS

None.

EXAMPLES

In the following example, chunklet 500 on physical disk 1 is scanned for media defects:

```
cli% checkpd scrub -ch 500 1
{Tue Jul 10 17:11:26 PDT 2007} {31391} Open system device...
{Tue Jul 10 17:11:26 PDT 2007} {31391} Attach to system manager...
{Tue Jul 10 17:11:26 PDT 2007} {31391} Waiting for system manager ready...
{Tue Jul 10 17:11:26 PDT 2007} {31391} PD Scrubber 1.5 started
{Tue Jul 10 17:11:26 PDT 2007} {31391} Thread 16386 started for port 0:0:1
{Tue Jul 10 17:11:26 PDT 2007} {31391} Starting scan of pd 1 on port 0:0:1
{Tue Jul 10 17:11:27 PDT 2007} {31393} Scanning pd 1 ch 500
{Tue Jul 10 17:11:39 PDT 2007} {31393} Scan pd 1 ch 500 finished with 0
errors
{Tue Jul 10 17:11:39 PDT 2007} {31391} No media errors detected
```

NOTES

- The <size> specifier can include a letter to indicate units:
 - ◆ g = gigabytes (2^{30})
 - ◆ t = terabytes (2^{40})
 - ◆ p = petabytes (2^{50})
 - ◆ m = 1048576 byte
 - ◆ k = 1024 bytes
 - ◆ s = 512 bytes
- I/O errors will be reported even if the eventual I/O succeeds due to retries.
- Up to 40 physical disk IDs can be specified for the `diag` test type.

COMMAND

checkport

DESCRIPTION

The `checkport` command performs a loopback test on Fibre Channel ports.

SYNTAX

`checkport [options <arg>] <node:slot:port>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-time <seconds_to_run>`

Specifies the number of seconds the test is to run. Use an integer from 0 to 300.

`-iter <iterations_to_run>`

Specifies the number of times the test is to run. Use an integer from 1 to 1000000.

SPECIFIERS

`<node:slot:port>`

Specifies the port to be tested.

`node`

Specifies the node using a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the specified node using a number from 0 through 5.

`port`

Specifies the Fibre Channel port number of the PCI card in the specified PCI bus slot using 1 through 4.

RESTRICTIONS

None.

EXAMPLES

In the following example, the loopback test is performed on port 0:0:1 a total of five times:

```
cli% checkport -iter 5 0:0:1
Starting loopback test on port 0:0:1
Port 0:0:1 completed 5 loopback frames in 0 seconds
Passed
```

NOTES

- When both the `-time` and `-iter` options are specified, the first limit reached terminates the program. If neither are specified, the default is 1,000 iterations. The total run time is always limited to 300 seconds even when not specified.
- The default loopback is an ELS-ECHO sent to the HBA itself.
- QLogic HBAs do not support ELS-ECHOs to themselves, so a custom external loopback operation is used. This requires that no other devices are present on the port.

COMMAND

checkvv

DESCRIPTION

The `checkvv` command executes validity checks of virtual volume administration information in the event of an uncontrolled system shutdown and optionally repairs corrupted virtual volumes.

SYNTAX

```
checkvv [options] <VV_name>...
```

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-y` | `-n`

Specifies that if errors are found they are either modified so they are valid (`-y`) or left unmodified (`-n`). If not specified, errors are left unmodified (`-n`).

SPECIFIERS

`<VV_name> . . .`

Requests that the integrity of the specified virtual volume is checked. This specifier can be repeated to execute validity checks on multiple virtual volumes.

RESTRICTIONS

The `checkvv` command cannot be issued for virtual volumes that have been started.

EXAMPLES

The following example displays a validity check of virtual volume test1:

```
cli% checkvv -n test1

Doing a consistency check only (no repairs)

Return PASS starting volume!!
```

NOTES

None.

8

CLI Command

In this chapter

cli

8.2

COMMAND

`cli`

DESCRIPTION

The `cli` command provides a means to set up your CLI session or to enter directly into a CLI shell.

SYNTAX

`cli [options] [<commands>]`

AUTHORITY

Super, Edit, Browse, Service

OPTIONS

`-v`

Displays the CLI client version.

`-b`

Displays the CLI client build level.

`-h`

Displays help for the `cli` command.

`-tpdportnum <portnum>`

Specifies the IP port of the CLI server to which the CLI client connects. The default port number is 2540. If using SSL, the default port number is 2550.

`-sockssl`

Use SSL for a socket connection. SSL can be used when either this option is used or the `TPDSOCKSSL` environment variable has been set.

`-sys <sysname>`

Connect to system named `<sysname>`. When this option is not used, the CLI uses the value of the `TPDSYSNAME` environment variable. When the `TPDSYSNAME` environment variable is not set, the CLI prompts you for the system name.

`-pwf <passwdfile>`

Specifies the password file that contains the user name and encrypted password. If this option is not used, check the `TPDPWFILE` environment variable for the password filename. If the environment variable is not set, the CLI prompts you for the user name and password.

`-user <user_name>`

Specifies a user name to access the CLI. If used, this option must be issued with the `-password` option and overrides the `-pwf` option.

`-password <encrpw>`

Specifies an encrypted password to access the CLI. If used, this option must be issued with the `-user` option and overrides the `-pwf` option.

`-cmdloop`

Specifies that after commands are issued on the command line, an interactive command loop is entered.

`-hafter <nlines>`

Prints a header after `<nlines>` of data.

`-nohdtot`

Does not print header and totals.

`-csvtable`

Prints table data as Comma Separated Values (CSV).

`-listdom <domain_name>`

Indicates the domain associated with the storage server.

SPECIFIERS

[`<command>`]

Any CLI command. This specifier is not required when issuing the `cli` command. If commands are specified, the CLI exits after executing the commands unless the `-cmdloop` option is specified. If no commands are specified in the command line, CLI enters the command loop.

RESTRICTIONS

None.

EXAMPLES

The following example displays the CLI client version:

```
$ cli -v
CLI client version: 2.1.1
```

The following example identifies the storage server being accessed as `system1`:

```
$ cli -sys system1
```

The following example displays the current user `user1` and the user's password `pw2`:

```
$ cli -user user1 -password pw2
```

The following example places the CLI in an interactive command loop:

```
$ cli -cmdloop
```

NOTES

- If the `cli` command is issued without any arguments, you are placed in a CLI shell.
- After commands are issued, the CLI exits unless the `-cmdloop` option was specified.

9

Compact Commands

In this chapter

`compactcp`

9.2

`compactld`

9.4

COMMAND

`compactcpg`

DESCRIPTION

The `compactcpg` command consolidates logical disk space in Common Provisioning Groups (CPGs) into as few logical disks as possible, allowing unused logical disks to be removed and their space reclaimed.

SYNTAX

`compactcpg [options] <CPG_name|pattern>...`

AUTHORITY

Super, Edit

OPTIONS

`-pat`

The specified patterns are treated as the list of `<CPG_name>` or `<pattern>...` as glob-style (shell-style) patterns and compact all the CPGs that match any of those pattern (see Help on `sub`, `globpat`).

`-waittask`

Waits for any created tasks to complete.

`-keepld`

Does not remove any unused logical disks after consolidating the space.

`-trimonly`

Removes unused logical disks after consolidating the space. This option will not perform any region moves.

`-nowait`

Specifies that the command should not wait for the moves to complete. When this option is specified, the command prints the task identifier of the created tasks. The `showtask` command can be used to see the status of the tasks. When this option is not specified, the command polls for the task status and returns only after the task is completed or terminated because of an error.

`-dr`

Specifies that the operation is a dry run, but does not actually perform the tasks.

-f

Does not ask for confirmation before compacting the logical disks. Unless the -f option is specified, the command asks for confirmation before compacting each CPG.

SPECIFIERS

<pattern>...

Specifies a glob-style pattern. This specifier can be repeated to compact multiple CPGs. If this specifier is not used, the <CPG_name> specifier must be used. Refer to [Glob-Style Pattern](#) on page 2.4 for further information.

<CPG_name>...

Specifies the name of the CPG. Multiple CPGs can be specified.

RESTRICTIONS

None.

EXAMPLES

The following example shows how to compact a single CPG named testcpg and remove any unused logical disks after consolidating the space:

```
cli% compactcpg -trimonly testcpg
select q=quit y=yes n=no: y
  Started tasks 456
Waiting for tasks: 456
Task 456 done
Removing ld tp-0-sd-0.1
```

NOTES

Logical disks that are consolidated must have the same owner and backup nodes. If one logical disk exists with a different owner and backup node, that logical disk will be compacted individually.

COMMAND

compactld

DESCRIPTION

The `compactld` command consolidates space on the logical disks.

SYNTAX

`compactld [options <arg>] <LD_name>... | <pattern>...`

AUTHORITY

Super, Edit

OPTIONS

`-pat`

The specified patterns are treated as the list of `<LD_name>...` or `<pattern>...` as glob-style (shell-style) patterns and compact all the logical disks that match any of those patterns (see Help on `sub`, `globpat`).

`-cons`

This option consolidates regions onto the fewest possible logical disks. When this option is not specified, the regions of each logical disk will be compacted within the same logical disk (see Notes).

`-waittask`

Waits for any created tasks to complete.

`-keepld`

After the logical disks have been compacted, use this option to prevent the removal of any resulting free space. Without this option, any empty logical disks will be removed and logical disks with some free space will be truncated.

`-taskname <taskname>`

Specifies a name for the task. When not specified, a default name is chosen.

`-dr`

Specifies that the operation is a dry run, but does not actually perform the tasks.

`-f`

Does not ask for confirmation before compacting the logical disks. Unless the `-f` option is specified, the command asks for confirmation before compacting each logical disk.

`-trimonly`

Only unused logical disk space is removed. Regions are not moved.

SPECIFIERS

`<LD_name>...`

Specifies the name of the logical disk to be compacted. Multiple logical disks can be specified.

`<pattern>...`

Specifies a glob-style pattern. This specifier can be repeated to compact multiple logical disks. If this specifier is not used, the `<LD_name>` specifier must be used. Refer to [Glob-Style Pattern](#) on page 2.4 for further information.

RESTRICTIONS

None.

EXAMPLES

In the following example, logical disk `pdsld0.0` is compacted:

```
cli% compactld -f pdsld0.0
Compacting LDs:
  pdsld0.0
```

NOTES

- When the `-cons` option is specified, the regions are moved into as few of the existing logical disks as possible; however, regions are only moved to logical disks that have the same owner and backup nodes. Then, when the `-reclaimspace` option is specified, the unused logical disks are removed.
- When the `-cons` option is not specified, the regions are moved within the same logical disk so that as much of the unused logical disks as possible is made into a single contiguous space. Then, when the `-reclaimspace` option is specified, the logical disk is truncated to free up as much of the unused space as possible. Also note that the logical disk can only truncate on row boundaries.

10

Control Commands

In this chapter

controliscsiport	10.2
controlmag	10.5
controlpd	10.7
controlport	10.9

COMMAND

controliscsiport

DESCRIPTION

The controliscsiport command is used to set properties of an iSCSI port.

SYNTAX

The syntax for the controliscsiport command can be one of the following examples:

- controliscsiport addr <IP_address> <netmask> [-f] <node:slot:port>
- controliscsiport gw <gw_address> [-f] <node:slot:port>
- controliscsiport mtu <mtusz_bytes> [-f] <node:slot:port>
- controliscsiport dhcp on|off [-f] <node:slot:port>
- controliscsiport isns <isns_primary> [<isns_secondary>][-f] <node:slot:port>
- controliscsiport isnsport <isns_port> [-f] <node:slot:port>
- controliscsiport delete [-f] <node:slot:port>
- controliscsiport ping [<count>] <ipaddr> <node:slot:port>

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

addr

Sets the IP address and netmask of the iSCSI port.

gw

Sets the gateway address of the iSCSI port.

mtu

Sets the maximum transmission unit (MTU) size for the iSCSI port.

`dhcp`

Sets whether or not (on or off) the iSCSI target should use the DHCP to obtain its IP addresses.

`isns`

Sets the primary or secondary iSNS server IP addresses.

`isnsport`

Sets the TCP port number for the iSNS server. By default, the default iSNS port number is used.

`delete`

Deletes the iSCSI port configuration.

`ping`

Pings the specified IP address a specified number of times from the iSCSI port.

SPECIFIERS

`<IP_address>`

Indicates the IP address of the iSCSI target.

`<netmask>`

Indicates the IP netmask of the iSCSI target.

`<gw_address>`

Indicates the IP address of the gateway.

`<mtusz_bytes>`

Indicates the MTU size in bytes.

`<isns_primary>`

Indicates the IP address of the primary iSNS server.

`<isns_secondary>`

Indicates the IP address of the secondary iSNS server.

`<isns_port>`

Returns the TCP port number of the iSNS server.

`<count>`

Indicates the number of ping packets to send. If a value is not specified, the default is one packet.

`<node:slot:port>`

The physical location of the iSCSI target port.

OPTION

`-f`

Do not ask for confirmation. The default is to ask for confirmation.

RESTRICTIONS

None.

EXAMPLES

In the following example, iSCSI port configuration is deleted:

```
cli% controliscsi delete -f 104.64.98
```

NOTES

None.

COMMAND

controlmag

DESCRIPTION

The `controlmag` command takes drive magazines, or disk drives within a magazine, either on-loop or off-loop. Use this command when replacing a drive magazine or disk drive within a drive magazine.

SYNTAX

```
controlmag offloop|onloop [options] <cage_name> <magazine>
```

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

offloop|onloop

Specifies that the specified drive magazine or disk drive is either taken off-loop or brought back on-loop.

OPTIONS

`-disk <disk_number>`

Specifies that the operation is performed on the disk as specified by its position within the drive magazine. If not specified, the operation is performed on the entire drive magazine.

`-port a|b|both`

Specifies that the operation is performed on port A, port B, or both A and B. If not specified, the operation is performed on both ports A and B.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

<age_name>

Specifies the name of the drive cage. Drive cage information can be viewed by issuing the `showcage` command.

<magazine>

Specifies the drive magazine number within the drive cage. Valid formats are <drive_cage_number>.<drive_magazine> or <drive_magazine> (for example 1.3 or 3, respectively).

RESTRICTIONS

None.

EXAMPLES

The following example requests that drive magazine 1 in drive cage `cage0` be put on-loop:

```
cli% controlmag onloop cage0 1
```

NOTES

Taking a drive magazine off-loop has the following consequences:

- Relocation of chunklets.
- Affected logical disks are put into write-through mode.
- Momentary dip in throughput, but no loss of connectivity.

COMMAND

`controlpd`

DESCRIPTION

The `controlpd` command spins a physical disk up or down. This command is used when replacing a physical disk in a drive magazine.



CAUTION: Issuing the `controlpd` command puts the specified disk drive in a *not ready* state. Further, if this command is issued with the `spindown` subcommand, data on the specified drive becomes inaccessible.

SYNTAX

`controlpd spinup|spindown [options] <world_wide_name>...`

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`spinup`

Specifies that the physical disk is to spin up. If this subcommand is not used, then the `spindown` subcommand must be used.

`spindown`

Specifies that the physical disk is to spin down. If this subcommand is not used, then the `spinup` subcommand must be used.

OPTIONS

`-ovrd`

Specifies that the operation is forced, even if the physical disk is in use.

SPECIFIERS

<WWN> . . .

Specifies the World-Wide Name (WWN) of the physical disk. This specifier can be repeated to identify multiple physical disks.

RESTRICTIONS

The spin down operation cannot be performed on a physical disk that is in use unless the `-ovrd` option is used.

EXAMPLES

The following example instigates the spin-up of a physical disk identified by its WWN of 2000000087002078:

```
cli% controlpd spinup 2000000087002078
```

NOTES

None.

COMMAND

controlport

DESCRIPTION

The `controlport` command controls all aspects of a Fibre Channel or Remote Copy port, including the port's connection type and data rate.

SYNTAX

The syntax for the `controlport` command can be one of the following:

- `controlport rst [-m <mode>|-l|-i] [-f] <node:slot:port>...`
- `controlport offline <node:slot:port>`
- `controlport lip [-c <cagename>] [-f] <node:slot:port>...`
- `controlport ct <ctval> [-f] <node:slot:port>...`
- `controlport cl2 <cl2val> [-f] <node:slot:port>...`
- `controlport rate <rateval> [-f] <node:slot:port>...`
- `controlport vcn <vcnval> [-f] <node:slot:port>...`
- `controlport persona <personaval> [-i][-f] <node:slot:port>...`
- `controlport nssync [-f] <node:slot:port>`
- `controlport intcoal <intcoalval> [-f] <node:slot:port>...`
- `controlport rcip addr [-f] <IP_address> <netmask>
<node:slot:port>...`
- `controlport rcip gw [-f] <gateway_address> <node:slot:port>...`
- `controlport rcip delete [-f] <node:slot:port>...`
- `controlport rcip mtu <MTU_size> <node:slot:port>...`
- `controlport rcip state up|down [-f] <node:slot:port>...`
- `controlport rcip speed <value> half|full <node:slot:port>...`
- `controlport rcip speed auto <node:slot:port>...`
- `controlport rcip ping [-c <count>|-w <wai>|-s <size>|-pf]
<IP_address> <node:slot:port>...`

- `controlport rcfc init [-f] <node:slot:port>`
- `controlport rcfc delete [-f] <node:slot:port>`

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`rst`

Resets a port.

`offline`

Holds the specified port offline indefinitely. Issue `controlport rst` to bring the port back online.

`lip`

Specifies that a Loop Initialization Primitive (LIP) command is issued from the port if there is a private loop topology. If the `-c` option is specified, then the LIP command is issued through the specified drive cage. If there is a point-to-point topology, then the link is reset. If there is a public loop or fabric topology, then a Registered State Change Notification is issued to the fabric controller.

`ct`

Sets the connection type. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand. Note that the specified port resets.

`cl2`

Specifies the Fibre Channel Class-2 parameter of the port. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand. Note that the specified port resets.

`rate`

Specifies the data rate of the Fibre Channel port. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand. Note that the specified port resets.

`vcn`

Sets the VLUN Change Notification (VCN) generation support (`enable` or `disable`). When VCN generation support is enabled with a public loop or fabric topology, a Registered State

Change Notification (RSCN) message is issued to the fabric controller whenever a VLUN is created or removed. In addition, if enabled with a public loop topology, a Loop Initialization (LIP) is issued from the port whenever a VLUN is created or removed. See [Specifiers](#) on page 10.14 for additional information on parameters required to issue this subcommand.

`persona`

Sets the port persona that specifies the personality (specifications) of the device connected to a port. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`nssync`

Verifies current port database against the Name Server when a fabric is attached. Entries present in the database but missing from the Name Server are removed. Note that the use of this command is not required under normal circumstances.

`rcip addr`

Sets the Remote Copy interface to use the specified IP address and netmask. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`rcip gw`

Sets the gateway for one or more Remote Copy interfaces. Only for RCIP ports. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`rcip delete`

Deletes the configuration for one or more specified Remote Copy interfaces. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`rcip mtu`

Sets the Maximum Transfer Unit (MTU) size for the specified Remote Copy interface(s), overriding the default of 1500. The largest supported value is 9000 and the smallest is 100. Only for RCIP ports. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`rcip state up|down`

Sets the specified Remote Copy interface(s) as either up or down. Only for RCIP ports. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`rcip speed`

Instructs the specified Remote Copy interface(s) to use the specified speed and duplex, or to auto negotiate speed and duplex. The default is `auto`. Only for RCIP ports. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand.

`rcip ping`

Performs a ping from the specified interface to the specified address. Only for RCIP ports. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand. Use with the `-pf` option to prevent fragmentation of packets (see [Options](#) on page 10.12).

`rcfc init`

Sets the specified Remote Copy interface(s) on the local port. Only for RCFC ports.

`rcfc delete`

Deletes the configuration for the Remote Copy interface on the local port.

`intcoal`

Enables or disables interrupt coalescing. See [Specifiers](#) on page 10.14 for parameters required to issue this subcommand. Note that the specified port is reset.

OPTIONS

`-m <mode>`

This option can only be used with the `rst` subcommand. Resets the mode of the port. The port can be reset into a `target` or `initiator` mode. If not specified, the port is reset to its current mode. If the port's mode change value is prohibited, this command fails when attempting to reset to a different mode. Use `showport -c` to see whether mode change is allowed or prohibited for a particular port. See notes at the bottom of this section for additional information regarding port pair protection.



CAUTION: Use caution when changing modes for ports in LSI Fibre Channel adapters. Changing the mode of one port in a pair (for example, from initiator to target) causes the other port in the pair to also undergo a mode change. In the case where one port in the pair is offline (and therefore a mode change can be allowed), but the partner port is online, changing the mode of the offline port causes the online partner port to undergo mode change as well. This results in loss of use of the partner port because it is no longer online.

`-l`

Forces the port to reload firmware. This option can only be used with the `rst` subcommand and cannot be used with the `-i` option.



CAUTION: Issuing the `controlport rst -l` command affects both ports of a port pair. Only use this command when irreversible damage has been done to a port or port pair. For more information about ports in your system, issue the `showport -i` command (see [showport](#) on page 22.96).

`-c <cage_name>`

If using a private loop topology, a Loop Initialization Primitive (LIP) command is issued from the port. If a cage is specified using the `<cage_name>` argument, the LIP is issued through the cage controller.

- ◆ If using a point-to-point topology, the link is reset.
- ◆ If using a public loop or fabric topology, a Registered State Change Notification (RSCN) message is issued to the fabric controller.
- ◆ This option and argument can only be used with the `lip` subcommand.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-i`

Forces a mode change for a port even if the port's mode change value is prohibited. The partner port's mode is changed with this option as well. Use with the `controlport rst` or `controlport persona` commands. This option cannot be used with the `-l` option.

`-c <count>`

Specifies the number of replies accepted by the system before terminating the command. The default is 1; the maximum value is 25. This option can only be used with the `rcip ping` subcommand.

`-w <wait>`

Specifies the maximum amount of time to wait for replies. The default is the number of requested replies plus 5. The maximum value is 30. If a number is not specified, the option can only be used with the `rcip ping` subcommand.

`-s <size>`

Specifies the packet size. If no size is specified, the option defaults to 64. This option and argument can only be used with the `rcip ping` subcommand.

`-pf`

Prevents fragmentation of the packets when issuing the `controlport rcip ping` command.

SPECIFIERS

`<ctval>`

Specifies the connection parameter of the port. Parameters can be one of `loop`, `point`, or `lp`. The `loop` parameter sets the port to arbitrated loop mode, the `point` parameter sets the port to point-to-point mode, and the `lp` parameter sets the port into arbitrated loop mode, but switches to point-to-point mode if the arbitrated loop mode fails. This specifier must be provided when issuing the `ct` subcommand.

`<cl2val>`

Specifies the Fibre Channel Class-2 parameter of the port. Parameters can be one of `ack0`, `ack1`, or `disable`. This specifier must be provided when issuing the `cl2` subcommand.

`<rateval>`

Specifies the data rate of the Fibre Channel port. Rates can be one of 1, 2, 4, or `auto`. 1 sets the data rate to 1 GBps, 2 sets the data rate to 2 GBps, and 4 sets the data rate to 4 GBps. The `auto` parameter sets the port to autodetect the data rate. This specifier must be used when issuing the `rate` subcommand.

`<vcnval>`

Specifies the value of the VCN. The VCN value can be set as `enable` or `disable`. This specifier must be used when issuing the `vcn` subcommand.

`<impval>`

Specifies the IMP port attribute. The IMP value can be set as `enable` or `disable`. This specifier must be used when issuing the `imp` subcommand.

`<intcoalval>`

Specifies if interrupt coalescing is enabled or disabled. The value can be set as `enable` or `disable`. This specifier must be used with the `intcoal` subcommand.

`<node:slot:port>`

Specifies the port to be controlled.

`node`

Specifies the node using a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the specified node using a number from 0 through 5.

`port`

Specifies the Fibre Channel port number of the PCI card in the specified PCI bus slot using 1 through 4.

`<personaval>`

Specifies the personality (specifications) of the device connected a to a Fibre Channel port that includes its vendor, HBA, OS, level, and connection type. The `personaval` can be specified as an integer from 0 through 18. Persona setting 0 is for initiator ports that connect to storage server drive cages. Persona settings 1–18 are for target ports that connect to host or are used for Remote Copy. Personaval 16 and 17 are only used for RCFC ports. This specifier must be used when issuing the `persona` subcommand. See [Table 10-1](#) for port specifications.

Table 10-1. Port Persona Settings

Persona Setting	Vendor	HBA	OS	Level	Connection Type
0	Disk	—	—	—	Direct connect (DC)
1	Generic	Generic	Generic	0	Direct connect (DC)
2	Sun	SOC+	Generic	0	Direct connect (DC)
3	JNI	Generic	Generic	0	Direct connect (DC)
4	Emulex	Generic	Generic	0	Direct connect (DC)
5	HP	Generic	HP UX	0	Direct connect (DC)
6	Unused	Unused	Unused	0	Unused
7	Generic	Generic	Generic	0	Fabric attached (FA)
8	HP	Generic	HP_UX	0	Fabric attached (FA)

Table 10-1. Port Persona Settings *(continued)*

Persona Setting	Vendor	HBA	OS	Level	Connection Type
9	Sun	Generic	Generic	0	Fabric attached (FA)
10	QLogic	Generic	Windows	0	Fabric attached (FA)
11	QLogic	Generic	Egenera	0	Direct connect (DC)
12	QLogic	Generic	Egenera	0	Fabric attached (FA)
13	Generic	Generic	AIX	0	Direct connect (DC)
14	Generic	Generic	AIX	0	Fabric attached (FA)
15	Heterogeneous	Generic	Generic	0	Fabric attached (FA)
16	Generic	Generic	InForm	0	Direct connect (DC)
17	Generic	Generic	InForm	0	Fabric attached (FA)
18	Generic	Generic	OnTap	0	Direct connect (DC)
19	Generic	Generic	OnTap	0	Fabric attached (FA)

<IP_address>

Specifies the IP address for a Remote Copy interface.

<gateway_address>

Specifies the gateway address for a Remote Copy interface.

<netmask>

Specifies the netmask for a Remote Copy interface.

<MTU_size>

Specifies the MTU size for a Remote Copy interface using an integer from 100 through 9000. If no integer is specified, the value defaults to 1500.

`<speed> half|full`

Use only with the `rcip speed` subcommand. Specifies the speed setting (10, 100, or 1000) and duplex setting (`half` or `full`) for a Remote Copy interface. In addition to this specifier, you must also specify an interface using `<node:slot:port>`. If no speed or duplex settings are specified, or if you specify `auto` with the `rcip speed` subcommand, the system auto-negotiates the speed and duplex.

RESTRICTIONS

- The `-m <mode>` option for the `rst` subcommand cannot be specified if there are active connections already using the port (that is the port online) except as noted in the following section under port pair protection.
- Port pair protection:
 - ◆ For dual-port LSI Fibre Channel adapters, both ports in the pair must use the same mode (initiator or target).
 - ◆ For quad-port LSI Fibre Channel adapters, each ports pair (ports 1 and 2, ports 3 and 4) must use the same mode.
 - ◆ Changing the mode of one port in a pair (for example, from initiator to target) causes the other port in the pair to undergo a mode change as well.



CAUTION: Use caution when changing modes for ports in LSI Fibre Channel adapters. Changing the mode of one port in a pair (for example, from initiator to target) causes the other port in the pair to undergo a mode change. In the case where one port in the pair is offline (and therefore a mode change can be allowed), but the partner port is online, changing the mode of the offline port causes the online partner port to undergo a mode change as well. This results in loss of use of the partner port because it is no longer online.

- If there are active hosts or physical disks when issuing the `controlport rst` or `offline` commands, a warning is returned and you are prompted for confirmation to complete the execution of the commands.
- When issuing the `controlport ct`, `cl2`, `rate`, `persona`, or `rscn` commands, if there are active disks on the port, an error is returned. If there are active hosts on the port, the `-f` option is overridden (if specified), a warning is returned, and you are prompted for confirmation to complete the execution of the commands.

- The `controlport rcip addr` command is only allowed for node/slot/port combinations where there is an interface installed.

EXAMPLES

The following example shows how to reset port 1 in slot 0 on node 0 to target mode:

```
cli% controlport rst -m target 0:0:1
```

The following example shows how to increase MTU to 9000 on Gigabit Ethernet port 1 in node 6, slot 3:

```
cli% controlport rcip mtu 9000 6:3:1
Remote Copy change successful.
```

The following example shows how to set Remote Copy interface 172.16.1.11 on a Gigabit Ethernet port 1 in node 6, slot 3 using a netmask of 255.255.255.0:

```
cli% controlport rcip addr 172.16.1.11 255.255.255.0 6:3:1
Are you sure you want to change the address for 6:3:1?
select q=quit y=yes n=no: y
Remote Copy interface change successful.
```

The following example shows how to set the gateway for Gigabit Ethernet port 1 in node 6, slot 3 using a gateway address of 172.16.1.1:

```
cli% controlport rcip gw 172.16.1.1 6:3:1
Are you sure you want to change the gateway for 6:3:1?
select q=quit y=yes n=no: y
Remote Copy interface change successful.
```

NOTES

- If the `controlport rst` or `controlport offline` commands are issued for ports that have active hosts or physical disks, a warning is displayed and you are prompted for confirmation to continue with the command.
- If the `ct`, `cl2`, `rate`, or `persona` subcommands are specified on the command line, the port automatically resets for the changes to take effect.
- Issue the `showport` command with either the `-i` or `-par` options to verify the success of the `controlport` command. See [showport](#) on page 22.96.

- Resetting a port causes a momentary dip in throughput, but no loss of connectivity.
- Persona setting 0 is for initiator ports that connect to InServ Storage Server drive cages. Disk ports default to persona setting 0.
- The `-f` option forces the operation. Without the flag, the command prompts for confirmation. In some cases the command asks for confirmation even when the `-f` option is specified because the operation might disrupt the system operation.

11

Create Commands

In this chapter

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COMMAND

createald

DESCRIPTION

This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

The `createald` command creates logical disks with automatic chunklet allocation for the disks.

SYNTAX

```
createald [options <arg>] <LD_name> <size>[g|G]
```

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-domain <domain>`

Specifies the domain. The default is to create logical disk(s) in the current domain, or no domain if the current domain is not set.

`-templ <template_name>`

Specifies that options from templates created using the `createtemplate` command are applied to logical disks created with the `createald` command. Options specified in the template are read-only or read/write. The read/write options can be overwritten with new options at creation time. The read-only options cannot be overwritten at creation time.

`-t <RAID_type>`

Specifies the RAID type of the logical disk. Enter `r0` for RAID 0, `r1` for RAID 10 or `r5` for RAID 50. If not specified, the default is `r1` or RAID 10.

`-ssz <size_number_chunklet>`

Specifies the set size in the number of chunklets. If not specified, the default value for RAID 1 is 2 and the default value for RAID 50 is 4. If unspecified, the default set size is used by the `showspace` command to estimate space available.

`-rs <size>`

Specifies the number of sets in a row using an integer from 1 through 2147483647. If not specified, no row limit is imposed. The default is no limit.

`-ss <size_KB>`

Specifies the step size from 32 KB to 512 KB. The step size should be a power of 2 and a multiple of 32. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha port|cage|mag`

Specifies that RAID 1 or 5 can support a failure of one port pair, a drive cage (`cage`) or drive magazine (`mag`). For RAID-1 and RAID-5 (the user default), the snap admin and snap data areas are `cage`. For RAID-0 the default for the snap admin area is `cage`. If `cage` is specified, chunklets from different drive cages are used within a RAID set. If `mag` is specified, chunklets from different drive magazines, but possibly from the same drive cage, are used in a RAID set. For RAID 0, the default for the snapshot administration area is `cage`.

`-ch first|last`

Specifies the chunklet characteristics, either `first` (fastest chunklets) or `last` (slowest chunklets). If no argument is specified, the default characteristic is `first`.

`-wait <ts>`

If the `createald` command fails to create the logical disks, the `-wait` option waits for the specified number of seconds (`<ts>`) for the chunklets to initialize. The default is computed automatically.

`-dr`

Specifies that the command is a dry run and that no logical disks are actually created.

`-verbose on|off`

Specifies that verbose output is either enabled (`on`) or disabled (`off`). If not specified, verbose output is disabled. The default is `off`.

`-cpsd <CPG_name>`

Specifies that the logical disk created is added to the specified Common Provisioning Group's (CPG's) snapshot data space.

`-cpsa <CPG_name>`

Specifies that the logical disk created is added to the specified CPG's snapshot administration space.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (*item*). Multiple nodes are separated with a single comma (1, 2, 3). A range of nodes is separated with a hyphen (0–7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0–7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0–4). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0–3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devId`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for logical disk creation. The total number of chunklets on the disks must be greater than the specified number.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for logical disk creation. The total number of chunklets on the disks must be less than the specified number.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for logical disk creation. The total number of free chunklets must be greater than the specified number.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for logical disk creation. The total number of free chunklets must be less than the specified number.

`-devid <ID>,<ID>,...`

Specifies that physical disks identified by their device IDs are selected for logical disk creation. Device IDs can be specified in a comma-separated list. Device IDs can be displayed by issuing the `showpd -i` command.

`-devtype <device_type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

SPECIFIERS

`<LD_name>`

Specifies the logical disk base name (up to 24 characters in length). The name is created by concatenating the name with an integer value - starting at zero, incrementing it by one for each logical disk generated, up to 999999. This field is required.

`<size>`

Specify the minimum usable space in MB. The size should be an integer. If the value is followed by a g or G, (no whitespace before g or G) the size is in GB. If the size is to be taken from a template, this field should be (-). For this command KB = 1024 bytes, MB = 1048576 bytes, GB = 1073741824 bytes.

RESTRICTIONS

None.

EXAMPLES

The following example displays the creation of a 256 MB logical disk named `testld.0`:

```
cli% createald testld 256
```

NOTES

- Verify the creation of a logical disk by issuing the `showld` command. See [showld](#) on page 22.49 for more information.
- For `createald`:
 - ◆ KB = 1024 bytes
 - ◆ MB = 1048576 bytes
 - ◆ GB = 1073741824 bytes
- By default, logical disk are created using only physical disks with the same device type. (By default, the Fibre Channel device type is used). Use the `-p devtype NL` option to override this default. Use `showpd -i` to see the device types of physical disks in the system.
- If no device type is specified using the `-p -devtype` option, Fibre Channel is assumed.

COMMAND

`createaldvv`

DESCRIPTION

This command was deprecated in the 2.2.3 release and will be changed or removed in a future release. Please use the `createvv` command in the future.

The `createaldvv` command creates a virtual volume and its underlying logical disks and allows the system to automatically allocate resources to meet specified use requirements. The virtual volume and its logical disks can be created using either the listed options or by using preconfigured templates (created through the `createtemplate` command; see [page 11.48](#)).

SYNTAX

`createaldvv [options <arg>] <VV_name> <size>[g|G]`

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-templ <template_name>`

Use the options defined in template `template_name`. The template is created using the `createtemplate` command. Options specified in the template are read-only or read-write. The read-write options may be overridden with new options at creation time but read-only options may not be overridden at creation time.

Options not explicitly specified in the template take their default values, and all of these options are either read-only or read-write (using the `-nro` or `-nrw` options of the `createtemplate` command). If not included, the `-size` and `-cpg` options are automatically treated as read-write even if the other not included properties are marked read-only.

`-t <RAID_type>`

Specifies the RAID type of the logical disk. Enter `r0` for RAID 0, `r1` for RAID 10, or `r5` for RAID 50. If no RAID type is specified, the default is `r1` (RAID 10).

`-ssz <size_number_chunklet>`

Specifies the set size in number of chunklets. The default set size is 2 for RAID-1, 4 for RAID-5. If not specified, the default set size is used by the `showspace` command to estimate space available.

`-rs <size>`

Specifies the number of sets in a row. The default is no row limit.

`-ss <sizeKB>`

Specifies the step size from 32 KB to 512 KB. The step size should be a power of 2 and a multiple of 32. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha port|cage|mag`

RAID-1 or RAID-5 can support a failure of one port pair, one cage, or mag. For RAID-1 and RAID-5 the user default, snap admin and snap data areas are cage. For RAID-0 the default for the snap admin area is cage.

`-ch first|last`

Specifies the chunklet characteristics, either `first` (fastest chunklets) or `last` (slowest chunklets). If no argument is specified, the default characteristic is `first`.

`-f`

Does not ask for confirmation before creating a RAID-0 volume.

`-wait <ts>`

Waits for the specified number of seconds (`<ts>`) for the chunklets to initialize. The default is computed automatically.

`-dr`

Specifies that the command is a dry run and that no logical disks or virtual volumes are actually created.

`-verbose on|off`

Specifies that verbose output is either enabled (`on`) or disabled (`off`).

`-cnt <number_of_VV>`

Specifies the number of identical virtual volumes to create using an integer from 1 through 999. If not specified, one virtual volume is created.

`-i <VV_ID>`

Specifies the ID of the created virtual volume. If not specified, the virtual volume's ID is the next available virtual volume ID.

`-szs <size>[g|G]`

Specifies the size for the snapshot volume in MB (maximum 1073741568). The default value is not set. The optional g or G parameter (no space before g or G) modifies the unit to Gigabyte. When `-cpg <CPG_name>` is specified, this value should be 0.

`-pct <prc>`

Size for the snap volume in percentage of user volume. Only one of `-szs` or `-pct` can be set. The default is 0. If `-cpg <CPG_name>` is specified, this value should be 0.

`-cpg <CPG_name>`

Specifies that the snapshot data space and snapshot administration space are provisioned from the indicated CPG.

`-aw <percent>`

Specifies the allocation warning threshold of the CPG. When the snapshot data space of the virtual volume exceeds the specified percentage of the virtual volume size, an alert is generated.

`-al <percent>`

Specifies the allocation limit of the CPG. When the snapshot data space of the virtual volume exceeds the specified percentage of the virtual volume size, an alert is generated.

`-spt <sectors_per_track>`

Allows you to define the virtual volume geometry sectors per track value that is reported to the hosts through the SCSI mode pages. The valid range is from 4 to 8192 and the default value is 304.

`-hpc <heads_per_cylinder>`

Allows you to define the virtual volume geometry heads per cylinder value that is reported to the hosts through the SCSI mode pages. The valid range is from 1 to 1024 and the default value is 8.

`-pol <pol>[, <pol>...]`

Specifies the policy (rule) that the created virtual volume follows. If an argument is not specified, the policy defaults to `stale_ss`.

`stale_ss`

Specifies that invalid snapshot volumes are permitted. Failure to update snapshot data does not affect the write to the base volume. However, the snapshot is considered invalid.

`no_stale_ss`

Specifies that invalid snapshot volumes are not permitted. A failure to update a snapshot is considered a failure to write to the base volume.

`one_host`

This constrains the export of a volume to one host or one host cluster (when cluster names can be used as a host name).

`no_one_host`

This policy should only be used when exporting a virtual volume to multiple hosts for use by a cluster-aware application, or when "port presents" VLUNs are used. This is the default policy setting.

`-domain <domain>`

Specifies the name of the domain in which the created volume resides. The volume must be created by a member of a particular domain with Edit or Super privileges.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (`item`). Multiple nodes are separated with a single comma (1, 2, 3). A range of nodes is separated with a hyphen (0-7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0-7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0-5). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0-3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0-7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0-3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0-3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devId`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>,<ID>,...`

Specifies that physical disks identified by their device IDs are selected for logical disk creation. Device IDs can be specified in a comma-separated list. Device IDs can be displayed by issuing the `showpd -i` command.

`-devtype <type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example, `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

SPECIFIERS

`<VV_name>`

Specifies the virtual volume name, using up to 31 characters. If the `-cnt` option is used, a dot and sequence number will be appended. The final name has this same constraint.

<size>[g|G]

Specifies the size for the user volume in MB (maximum of 2096128 MB). The size should be an integer. If the value is followed by a g or G, (no whitespace before g or G) the size is in GB. If the size is to be taken from a template, this field should be (-).

RESTRICTIONS

- Options `-pct` and `-szs` cannot be used in the same instance of issuing the `createaldvv` command.
- If using the `-cpg` option, values for `-pct` and `-sza`, if specified, must be zero.

EXAMPLES

The following example displays the creation of a 10240 MB, RAID 1 virtual volume named `vvtest` with a snapshot volume size of 1024 MB:

```
cli% createaldvv -t r1 -szs 1024 vvtest 10240
```

The following example creates a volume named `vvtest` using only nearline drives:

```
cli% createaldvv -p -devtype NL vvtest 1g
```

NOTES

- This command was deprecated in the 2.2.3 release and will be changed or removed in a future release. Please use the `createvv` command in the future.
- For `createaldvv`:
 - ◆ KB = 1024 bytes
 - ◆ MB = 1048576 bytes
 - ◆ GB = 1073741824 bytes
- When using the `createaldvv` command, the size of the logical disk space created is the first integer multiple of the RAID set size that is large enough to accommodate the requested virtual volume size. For example, with the default RAID 5 layout with a set size of 768 MB, a requested virtual volume size of 8192 MB causes the creation of logical disks with a total size rounded up to an integer multiple of 768 that is 8448 MB. The growth increment of CPGs is similarly rounded up because the growth is done by creating logical

disks that must be created in units of the logical disk RAID set size. See the *InForm OS Concepts Guide* for further details.

- Verify the creation of the virtual volume and its underlying logical disks by issuing the `showvv` and `showld` commands. See [showvv](#) on page 22.169 and [showld](#) on page 22.49 for additional information.
- By default, logical disk are created using only physical disks with the same device type (by default, the Fibre Channel device type is used). Use the `-p devtype NL` option to override this default. Use `showpd -i` to see the device types of physical disks in the system.
- If no device type is specified using the `-p -devtype` option, Fibre Channel is assumed.
- You can create up to 4095 base volumes on the system and a combined total of 8192 base and snapshot volumes.

COMMAND

`createavv`

DESCRIPTION

The `createavv` command creates a virtual volume where logical disk mapping is determined by the system.

SYNTAX

The syntax for the `createavv` command can be one of the following:

- `createavv [options <arg>] <VV_name> <user_LD_ID> <usersize> <admnspace_LD_ID> <adminsiz> <snapspace_LD_ID> <snapsize>`
- `createavv [options <arg>] <VV_name> <user_LD_ID> <usersize>`

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-i <VV_ID>`

Specifies the ID of the virtual volume. If not specified, the next available virtual volume ID is assigned by the system.

`-verbose on|off`

Specifies that verbose output is either enabled (`on`) or disabled (`off`).

`-dr`

Specifies that the command is a dry run and that no virtual volumes are actually created.

`-cpg <CPG_name>`

Specifies that the snapshot data space and snapshot administration space are provisioned from the indicated CPG (`<CPG_name>`). If this option is used, the `<admnspace_LD_ID>`, `<adminsiz>`, `<snapspace_LD_ID>`, and `<snapsiz>` specifiers cannot be used.

`-al <percent>`

Specifies the virtual volume's allocation limit. The snapshot data space of the virtual volume is prevented from growing beyond the specified percentage of the virtual volume size. After reached, new writes to the volume fail.

`-aw <percent>`

Specifies the percentage of used snapshot data space that when reached, results in a warning alert. To disable the warning, enter 0.

`-spt <sectors_per_track>`

Allows you to define the virtual volume geometry sectors per track value that is reported to the hosts through the SCSI mode pages. The valid range is from 4 to 8192 and the default value is 304.

`-hpc <heads_per_cylinder>`

Allows you to define the virtual volume geometry heads per cylinder value that is reported to the hosts through the SCSI mode pages. The valid range is from 1 to 1024 and the default value is 8.

`-pol no_stale_ss | stale_ss | one_host | no_one_host`

Specifies the policy (rule) that the created virtual volume follows. If an argument is not specified, the policy defaults to `stale_ss`.

`stale_ss`

Specifies that invalid snapshot volumes are permitted. Failure to update snapshot data does not affect the write to the base volume. However, the snapshot is considered invalid.

`no_stale_ss`

Specifies that invalid snapshot volumes are not permitted. A failure to update a snapshot is considered a failure to write to the base volume.

`one_host`

This constrains the export of a volume to one host or one host cluster (when cluster names can be used as a host name).

`no_one_host`

This policy should only be used when exporting a virtual volume to multiple hosts for use by a cluster-aware application, or when port presents VLUNs are used. This is the default policy setting.

SPECIFIERS

<VV_name>

Specifies the virtual volume name, using up to 31 characters. This option and argument are required on the command line.

<user_LD_ID>

Specifies the logical disks to be used as user space. The logical disks are identified by one or more integers (*item*). Integers can be provided as single number (1), a comma separated list of numbers (1, 2, 3), or a range of numbers separated with a dash (1–4).

<usersize>

Specifies the size of the user space in megabytes.

<adminsace_LD_ID>

Specifies the logical disks to be used as snapshot administrator space. The logical disks are identified by one or more integers (*item*). Integers can be provided as single number (1), a comma separated list of numbers (1, 2, 3), or a range of numbers separated with a dash (1–4).

<adminsize>

Specifies the size of the snapshot administrator space in megabytes.

<snapspace_LD_ID>

Specifies the logical disks to be used as snapshot data space. The logical disks are identified by one or more integers (*item*). Integers can be provided as single number (1), a comma separated list of numbers (1, 2, 3), or a range of numbers separated with a dash (1–4).

<snapsize>

Specifies the size of snapshot data space in megabytes.

RESTRICTIONS

- Logical disks must be available to run the `createavv` command. Issue the `createald` command to create logical disks. See [createald](#) on page 11.3 for more information.
- The <adminsace_LD_ID>, <adminsize>, <snapspace_LD_ID>, and <snapsize> specifiers cannot be used if the `createavv -cpg` command is issued.

EXAMPLES

The following example displays the creation of virtual volume `vv0` with its user space set to 256 MB and its administrator space set to 256 MB:

```
cli% createavv vv0 0 256 1 256 2 256
```

NOTES

- Verify the creation of virtual volumes by issuing the `showvv` command. See [showvv](#) on page 22.169 for more information.
- A newly created logical disk is guaranteed to be clean. Chunklets of logical disks that are removed are cleaned before they are reused. However, regions of a logical disk that were previously used (for example, by another virtual volume) can contain data from its previous use. If these regions of the logical disk are mapped to your user space in a virtual volume, that data can be visible to the host that the virtual volume is exported.

If this is a concern, remove logical disks when the virtual volume is removed and use only newly created logical disks for your user space. Previous data in logical disks used for snapshot data space or snapshot admin space is not visible to you because these spaces are only visible after being written with new data.

- For this command, MB = 1048576 bytes.
- This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

COMMAND

`createcpg`

DESCRIPTION

The `createcpg` command creates a Common Provisioning Group (CPG).

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

SYNTAX

`createcpg [options <arg>] CPG_name`

OPTIONS

`-templ <template_name>`

Use the options defined in the template `<template_name>`. The template is created using the `createtemplate` command. Options specified in the template are read-only or read-write. The read-write options may be overridden with new options at the time of their creation, but read-only options may not be overridden at creation time.

Options not explicitly specified in the template take their default values, and all of these options are either read-only or read-write (using the `-nro` or `-nrw` options of the `createtemplate` command).

`-aw <percent>`

Specifies the percentage of used snapshot administration or snapshot data space that results in a warning alert. A percent value of 0 disables the warning alert generation. The default is 0.



NOTE: The following options, `-sdgs`, `-sdgl`, and `-sdgw` control the auto logical disk creation for the common provisioning group's snapshot data regions. Auto logical disk creation occurs when the amount of free logical disk space falls below the specified grow (enlarge) size setting options (`-sdgs`, `-sdgl`).

`-sdgs <size>`

Specifies the amount of logical disk storage created on each auto-grow operation. If `<size>` is non-zero it must be 8192 (8G) or bigger. A size of 0 disables the auto-grow feature. The default auto-grow size is fixed at 32G, but the minimum auto-grow is a function of the number of online nodes in the system:

Number of Nodes	Default	Minimum
1-2	32G	8G
3-4	64G	16G
5-6	96G	24G
7-8	128G	32G

`-sdgl <size>`

Limits the auto-grow from exceeding this storage amount. A size of 0 means no limit is enforced. The default is 0.

`-sdgw <size>[g|G]`

Issues a warning alert when the used logical disk space exceeds this amount. A size of 0 means no warning limit is enforced. The default is 0. The size can be specified in megabytes (default). To specify the size in gigabytes, enter `g` or `G` directly after the specified size (no space).

`-sa <LD_name> . . .`

Specifies that existing logical disks are added to the CPG and are used for snapshot admin (SA) space allocation.

`-sd <LD_name> . . .`

Specifies that existing logical disks are added to the CPG and are used for snapshot data (SD) space allocation.



NOTE: The following options, `-t`, `-szs`, `-rs`, `-ss`, `-ha`, `-ch`, and `-p` are used to control auto logical disk creation (if auto-grow is enabled).

`-t <RAID_type>`

Specifies the RAID type: `r0`, `r1`, or `r5`. The default is `r1`.

`-ssz <size_number_chunklet>`

Specifies the set size in the number of chunklets. The default set size is 2 for RAID-1, 4 for RAID-5. If not specified, the default set size is used by the `showspace` command to estimate the space available.

`-rs <size>`

Specifies the number of sets in a row. The default is no limit.

`-ss <sizeKB>`

Specifies the step size from 32 KB to 512 KB. The step size should be a power of 2 and a multiple of 32. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha port|cage|mag`

RAID-1 or RAID-5 can support a failure of one port pair, one cage, or mag. For RAID-1 and RAID-5 (the user defaults), the snap admin and snap data areas are cage. For RAID-0, the default for the snap admin area is cage.

`-ch first|last`

Specifies the chunklet characteristics, either `first` (fastest chunklets) or `last` (slowest chunklets). If no argument is specified, the default characteristic is `first`.

`-domain <domain>`

Specifies the name of the domain with which the object will reside. The object must be created by a member of a particular domain with Edit or Super privileges.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (*item*). Multiple nodes are separated with a single comma (1, 2, 3). A range of nodes is separated with a hyphen (0–7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0–7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0–4). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. (The 1. or 0. indicates the side of the cage is omitted). Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0-3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid` and `-devtype` are used to select the disks that are used to create common provisioning groups based on the characteristics of the disk.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for logical disk creation.

`-devid <ID>,<ID>,...`

Specifies that physical disks identified by their device IDs are selected for logical disk creation. Device IDs can be specified in a comma-separated list. Device IDs can be displayed by issuing the `showpd -i` command.

`-devtype <type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example, `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

SPECIFIERS

<CPG_name>

Specifies the name of the common provisioning group being created.

RESTRICTIONS

None

EXAMPLES

The following example displays the creation of common provisioning group `cpg1`, whose logical disk storage is set to autogrow at 16 GB, has a growth limit of 32 GB, and receives a growth warning at 24 GB. The CPG's snapshot administration and snapshot data spaces are initialized with the specified logical disks.

```
cli% createcpg -sa ld1,ld2 -sd ld3,ld4 -sdgs 16g -sdgl 32g -sdgw 24g cpg1
```

The following example displays disks that satisfy all of the specified characteristics used. The example specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

```
cli% createcpg -p -fc_gt 60 -fc_lt 230 -nd 2
```

NOTES

- For `createcpg`:
 - ◆ KB = 1024 bytes
 - ◆ MB = 1048576 bytes
 - ◆ GB = 1073741824 bytes
- When using the `createcpg` command, the size of the logical disk space created is the first integer multiple of the RAID set size that is large enough to accommodate the requested virtual volume size. For example, with the default RAID 5 layout with a set size of 768 MB, a requested virtual volume size of 8192 MB causes the creation of logical disks with a total size rounded up to an integer multiple of 768 that is 8448 MB. The growth increment of CPGs is similarly rounded up because the growth is done by creating logical disks that must

be created in units of the logical disk RAID set size. See the *InForm OS Concepts Guide* for further details.

- By default, logical disk are created using only physical disks with the same device type. (By default, the Fibre Channel device type is used). Use the `-p devtype NL` option to override this default. Use `showpd -i` to see the device types of physical disks in the system.
- If no device type is specified using the `-p -devtype` option, Fibre Channel is assumed.

COMMAND

`createdomain`

DESCRIPTION

The `createdomain` command creates system domains.

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

SYNTAX

`createdomain [option <arg>] <domain_name>`

OPTIONS

`-comment <comment>`

Specifies any comments or additional information for the domain. The comment can be up to 511 characters long. Unprintable characters are not allowed.

SPECIFIERS

`<domain_name>`

Specifies the name of the domain you are creating. The domain name can be no more than 31 characters. The name `all` is reserved.

RESTRICTIONS

None.

EXAMPLES

The following example displays the creation of domain `Engineering` with an informational comment:

```
cli% createdomain -comment This is a test domain. Engineering
```

NOTES

None.

COMMAND`creategroupsv`**DESCRIPTION**

The `creategroupsv` command creates consistent group snapshots of a list of virtual volumes. Consistent group snapshots are all created at the same point in time so that related structures on different volumes in the group remain consistent.

SYNTAX

```
creategroupsv [option] <copy_of_VV>[:<snapshot_VV>[:<ID>]]...
```

AUTHORITY

Super, Edit

OPTIONS

`-ro`

Specifies that read-only snapshots are created. The default is read/write snapshots. To create read-only snapshots, all specified virtual volumes must be read/write. For read/write snapshots, all specified virtual volumes must be read-only. For information about snapshot rules, see the *InForm OS Concepts Guide*.

SPECIFIERS

`<copy_of_VV>`

Specifies the name of the virtual volume being copied (the parent volume). To create read-only snapshots, all specified volumes must be read/write. To create read/write snapshots, all specified volumes must be read-only.

`[<snapshot_VV>]`

Optional name of the snapshot virtual volumes. If `<snapshot_VV>` is not specified, the system tries to automatically generate the snapshot name of the form `<copy_of_VV>.<type><number>` where `<type>` is either `ro` or `rw` and `<number>` is either empty or the lowest number starting from 0 that does not conflict with an existing volume name. If the generated name is too long (because the `<copy_of_VV>` name is too long) the command will fail, and the user is required to specify `<snapshot_VV>` explicitly.

`[<ID>]`

Optional ID of the `<snapshot_VV>`. If the `<ID>` is not specified, an ID is chosen automatically.

RESTRICTIONS

None.

EXAMPLES

In the following example, virtual volumes VV1 and VV2, and their underlying logical disks are created using the `createaldvv` command. A read-only snapshot of the volumes is then taken and a list of the volumes is generated using the `creategroupsv` command:

```
cli% createaldvv -pct 10 VV1 4g
cli% createaldvv -pct 10 VV2 4g
cli% creategroupsv -ro VV1 VV2
CopyOfVV SnapshotVV
  VV1    VV1.ro
  VV2    VV2.ro
```

NOTES

- Consistent group snapshots are all created at the same point in time so that related structures on different volumes in the group remain consistent.
- A maximum of 128 writable virtual copies per volume are allowed.

COMMAND

`creategroupvvcopy`

DESCRIPTION

The `creategroupvvcopy` command creates consistent group physical copies of a list of virtual volumes.

SYNTAX

The syntax for the `creategroupvvcopy` command can be one of the following:

- `creategroupvvcopy -p [options] <parent_VV>:<destination_VV>...`
- `creategroupvvcopy -r [options] <destination_VV>...`
- `creategroupvvcopy -halt <destination_VV>...`

AUTHORITY

Super, Edit

OPTIONS

`-p`

Starts a copy operation from the specified parent volume (as indicated using the `<parent_VV>` specifier) to its destination volume (as indicated using the `<destination_VV>` specifier). First a set of consistent group snapshots of all the `<parent_VV>` specifiers are taken and then each snapshot is copied to the corresponding `<destination_VV>` specifier. After the copies are complete, the snapshots are deleted unless the `-s` option is specified. Each `<parent_VV>` specifier must be a base virtual volume or a read/write snapshot.

`-r`

Resynchronizes the set of destination volumes (as indicated using the `<destination_VV>` specifier) with their respective parents using saved snapshots so that only the changes made since the last copy or resynchronization are copied. Snapshots of the parents saved using the `-s` option in an earlier instance of the `creategroupvvcopy` command are necessary for the resynchronization operation. These old snapshots are replaced by a new set of consistent group snapshots for the next resynchronization operation (such as the `-s` option need not be specified with the `-r` option).

-halt

Cancels an ongoing physical copy or snapshot promotion. This causes the destination volume (as indicated using the `<destination_VV> . . .` specifier) to be marked with the `copy failed` status, which will be cleaned up when they are promoted to base virtual volumes or when a new copy is started.

-s

Saves snapshots of the parent volume (as indicated with the `<parent_VV>` specifier) for quick resynchronization and to retain the parent-copy relationships between each parent and destination volume. The `-s` option is implied and need not be specified when the `-r` option is used. Each `<destination_VV>` specifier remains marked as a physical copy of its `<parent_VV>` specifier until it is promoted to a base virtual volume using the `promotevvcopy` command, which also removes the saved snapshot of the `<parent_VV>` specifier. The saved snapshots should not be removed manually. If the same `<parent_VV>` specifier is copied to different `<destination_VV>` specifiers with the `-s` option, a different snapshot of the `<parent_VV>` specifier is saved for each `<destination_VV>` specifier.

-b

Use this specifier to block until all the copies are complete. Without this option, the command completes before the copy operations are completed (use the `showvv` command to check the status of the copy operations).

SPECIFIERS

`<destination_VV>`

Indicates the destination virtual volume.

`<parent_VV>`

Indicates the parent virtual volume.

RESTRICTIONS

None.

NOTES

- The `creategroupvvcopy` command can be issued multiple times. However, the InServ system allows only two active physical copy tasks to run concurrently. Any additional physical copy tasks are queued, pending the completion of the active physical copy tasks.

- Consistent group snapshots are all created at the same point in time so that related structures on different volumes in the group remain consistent.

COMMAND

createhost

DESCRIPTION

The `createhost` command creates or adds paths to a new system host and provides the option of assigning one or more paths to that host. Paths can be either Fibre Channel WWNs or iSCSI names. The command also provides options to annotate the host with descriptor information such as physical location, IP address, operating system, model, and so on.

SYNTAX

The syntax for the `creathost` command can be one of the following:

- `createhost [options <arg>] <host_name> [<WWN>...]`
`createhost -iscsi [options <arg>] <host_name> [<iSCSI_name>...]`

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-add`

Adds the specified WWN(s) or `iscsi_names`(s) to an existing host (at least one WWN or `iscsi_name`, must be specified. If the `-add` option is not used, the command defines a new host. See [Notes](#) for additional information about this option.

`-domain <domain>`

Creates a host in the specified domain. This option takes the additional argument that places the created object into a particular domain. the object must be created by a member of a particular domain with Edit or Super privileges. The created objects would reside in the `<domain>` indicated.

`-f`

Forces the tear down and removal of lower priority VLUN exports if necessary. See [Notes](#) for additional information about this option.

`-iscsi`

Indicates that any specified host paths are iSCSI names.

`-loc <location>`

Specifies the location of the host.

`-ip <IP_address>`

Specifies the IP address of the hosts.

`-os <OS>`

Specifies the operating system running on the host.

`-model <Model>`

Sets the model of the host.

`-contact <contact>`

Sets the owner of the host and contact information.

`-comment <comment>`

Specifies any additional information for the host.

SPECIFIERS

`<host_name>`

Specifies the name of the host, using up to 31 characters.

`<WWN>`

Specifies the World-Wide Name (WWN) to be assigned or added to an existing host. This specifier can be repeated to specify multiple WWNs. This specifier is not required on the command line.

`<iSCSI_name>`

Host iSCSI name to be assigned or added to a host. This specifier is not required on the command line.

RESTRICTIONS

None.

EXAMPLES

The following example creates system host test:

```
cli% createhost test01 2000000087041F72
cli% createhost -iscsi test01 ign.1991-06.com.microsoft:dt-391-
xp.hq.3par.com
cli% createhost -loc "Lab 5, Rack 37, Pos 1" test02
```

NOTES

- A host can be created without assigning a host path. The `-add` option associates a host path with an existing host. If the `-add` option is not used; the `createhost` command defines a new host.
- If assigning paths to a host you are creating, specify the `-f` option to remove any existing VLUNs associated with those paths to avoid any conflicting VLUNs. See the *InForm OS Concepts Guide* for more information.
- Verify the creation of a host by issuing the `showhost` command. See [showhost](#) on page 22.43 for more information.
- The options that allow for adding descriptive information are for annotation purposes only; the storage server does not actively use the information provided here.

COMMAND

`createld`

DESCRIPTION

This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

The `createld` command allows you to create a logical disk. Unlike the `createald` command, issuing the `createld` command requires that you allocate chunklets for the logical disk created.

SYNTAX

```
createld [options <arg>] <LD_name> <RAID_type> <row_size> <PD:ch>...
```

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-domain <domain>`

Creates a logical disk in the specified domain.

`-o <owner>`

Specifies the owner node. The owner is a number from 0 through 7 and must be a valid node ID within the system (`-o 1`). If the owner is not specified, the system selects the ow node.

`-b <backup_owner>`

Specifies the backup owner node in the event of an owning node failure. The backup owner is a number from 0 through 7 and must be a valid node ID within the system (`-o 1`). If the backup owner is not specified, the system selects the backup owner node.

`-md <mirrordepth>`

Specifies the number of ways to mirror for RAID 1 using an integer from 2 through 4. The minimum value is 2. This option and argument are required for RAID 1. This option cannot be specified for RAID 5.

`-ps <parityset>`

Specifies the number of chunklets in the RAID set. This option and argument are required for RAID 5.

`-ss <stepsize>`

Specifies the step size from 32 KB to 512 KB. The step size should be a power of 2 and a multiple of 32. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha port | cage | mag`

Defines the availability of the logical disk. The default is cage. The availability setting is used to select the destination chunklets during relocation of failed chunklets.

`-cpsd <CPG_name>`

Specifies that the logical disk created is added to the specified common provisioning group's snapshot data space.

`-cpsa <CPG_name>`

Specifies that the logical disk created is added to the specified common provisioning group's snapshot administration space.

SPECIFIERS

`<LD_name>`

Specifies the logical disk name, using up to 27 characters.

`<RAID_type>`

Specifies the RAID type of the disk. Enter 0 for RAID 0, 1 for RAID 10, or 5 for RAID 5.

`<row_size>`

Specifies the number of sets in a row using an integer from 1 through 2147483647.

`<PD:ch>...`

Specifies the chunklets to be used for the logical disk. Specifies the identification of a physical disk (PD) and the position number of the chunklet on the disk (ch). The `<PD:ch>` specifier can be repeated to specify additional chunklets.

RESTRICTIONS

None.

EXAMPLES

The following example displays the creation of RAID 1 logical disk `test2`.

```
cli% createald test2 1 1 23:22 24:25
```

NOTES

- Verify the creation of a logical disk by issuing the `showald` command. See [showald](#) on page 22.49 for more information.
- To create a RAID 1 volume the mirror depth (`-md` option) must be specified. To create a RAID 5 volume the parity set (`-ps` option) must be specified. The owner and backup owner should be a number between 0 and 7 and should be the node ID of a valid node in the system. The mirror depth can take any value between 2 and 4, inclusive.
- The use of the `createald` command is recommended.

COMMAND

creatercopygroup

DESCRIPTION

The `creatercopygroup` command creates a Remote Copy volume group.

SYNTAX

`creatercopygroup [options] <group_name> <target_name>:<mode>`

AUTHORITY

Super, Edit

OPTIONS

`-domain <domain>`

Creates the Remote Copy group in the specified domain. The volume group must be created by a member of a particular domain with Edit or Super privileges.

SPECIFIERS

`<group_name>`

Specifies the name of the volume group, using up to 22 characters if the `mirror_config` policy is set, or up to 31 characters otherwise. This name is assigned with this command.

`<target_name>`

Specifies the target name associated with this group. This name should already have been assigned using the `creatercopytarget` command. See [creatercopytarget](#) on page 11.42 for details.

`<mode>`

Specifies that the mode of the created group is either kept in synchronization at all times (`sync`) or synchronized only periodically (`periodic`), either on command or by setting an automatic resynchronization period through the `setrcopygroup` command. See [setrcopygroup](#) on page 21.51 for details.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example creates an asynchronous periodic mode volume group named Group1 whose target system is InServ2 (target name InServ2_out):

```
cli% creatercopygroup Group1 InServ2_out:periodic
```

If using domains, the syntax would appear as:

```
cli% creatercopygroup -domain domain2 Group1 InServ2_out:periodic
```

NOTES

If the `mirror_config` policy is set for this group's target and the group is a primary group, then the `creatercopygroup` command is mirrored to the target and a corresponding secondary volume group is also created. The secondary group uses the same group name with `.r<sys_ID>` added as a suffix, where `<sys_ID>` is the system ID for the primary target system for this group. If the `mirror_config` policy is set and the group is a secondary group, then this command fails.

COMMAND

`creatercopytarget`

DESCRIPTION

The `creatercopytarget` command creates a Remote Copy target definition.

SYNTAX

The syntax for the `creatercopytarget` command can be one of the following:

- Syntax for Remote Copy over IP (RCIP) is as follows:

```
creatercopytarget <target_name> IP [<node:IP_address>...]
```

- Syntax for Remote Copy over fibre channel (FCFC) is as follows:

```
creatercopytarget <target_name> FC <node_WWN> [<node:slot:port:WWN>...]
```

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

`<target_name>`

The name of the target definition to be created, specified by using up to 23 characters. See the *Remote Copy User's Guide* for suggested target naming conventions.

`<node_WWN>`

The node's world wide name on the target system (Fibre channel target only).

`<node:IP_address>`

Lists the node, IP address and pairs for the Remote Copy target system.

`<node:slot:port:WWN>`

Specifies the node, slot, port of the fibre channel port on the local system and a world wide name (WWN) address on the target system.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example sets up targets and links on *System2* (target name), node 0 and node 1. The IP addresses specify the addresses on the target system:

```
cli% creatercopytarget System2 IP 0:193.1.1.11 1:193.1.2.11
```

The following example sets up targets and links on *System1* (target name), node 0 and node 1. The IP addresses specify the addresses on the target system:

```
cli% creatercopytarget System1 IP 0:193.1.1.96 1:193.1.2.96
```

COMMAND

`createspare`

DESCRIPTION

The `createspare` command allocates chunklet resources as spares in the current service group. Chunklets marked as spare are not used for logical disk creation and are reserved explicitly for spares, thereby guaranteeing a minimum amount of spare space.

SYNTAX

`createspare [options <arg>] <chunklet_specifier>...`

AUTHORITY

Edit, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

Specifies that the operation is forced and that all chunklets are marked as spare.

`-p`

Specifies that partial completion of the command is acceptable. Additionally, specified chunklets are marked as spare only if they are not spare already.

SPECIFIERS

`<chunklet_specifier>...`

The chunklet specifier is one of the following arguments:

`<PD_ID:chunklet_number>`

Specifies the identification of the physical disk and the chunklet number on the disk. This specifier can be repeated.

`<PD_ID:a>`

Specifies the identification of the physical disk and all chunklets (a) on the disk. This specifier can be repeated.

`a:<chunklet_num>`

Specifies a chunklet number on all physical disks. This specifier can be repeated.

`-pos <cage:mag:disk:chunklet_num>`

Specifies the position of a specific chunklet identified by its position in a drive cage, drive magazine, physical disk, and chunklet number. This specifier can be repeated.

`-pos <cage:mag:disk:a>`

Specifies that all chunklets on a physical disk, identified by drive cage number, drive magazine number, and physical disk number, are marked spare. This specifier can be repeated.

RESTRICTIONS

If the `-f` option is not specified and a chunklet is in use, the `createspare` command fails.

EXAMPLES

- The following example marks chunklet 1 as spare for physical disk 15:

```
cli% createspare 15:1
```

- The following example specifies the position in a drive cage, drive magazine, physical disk, and chunklet number. `-pos 1:0.2:3:121`, where 1 is the drive cage, 0.2 is the drive magazine, 3 is the physical disk, and 121 is the chunklet number.

```
cli% createspare -pos 1:0.2:3:121 for cage 1, magazine 0.2, disk 3, chunklet 121.
```

NOTES

- To verify the creation of a spare chunklet, issue the `showspare` command. See [showspare](#) on page 22.136 for more information.
- If the `-f` option is specified, those chunklets marked as spare will not be used or overwritten if already in use.

COMMAND

`createsv`

DESCRIPTION

The `createsv` command creates a point-in-time (snapshot) copy of a virtual volume. Create snapshots to perform such tasks as backing up data on the base volume and allowing multiple copies of a base volume to be modified without affecting the original base volume.

SYNTAX

```
createsv [options <arg>] <SV_name> <copy_of_VV>
```

AUTHORITY

Super, Edit

OPTIONS

`-ro`

Specifies that the copied volume is read-only. If not specified, the volume is read/write.

`-i <VV_ID>`

Specifies the ID of the copied virtual volume.

SPECIFIERS

`<SV_name>`

Specifies the snapshot name, using up to 31 characters.

`<copy_of_VV>`

Specifies the parent volume name, using up to 19 characters.

RESTRICTIONS

- A read-only snapshot of a read-only source volume is not allowed.
- A read/write snapshot of a read/write snapshot or base is not allowed.

EXAMPLES

The following example creates a read-only snapshot volume `svr0_vv0` from volume `vv0`:

```
cli% createsv -ro svr0_vv0 vv0
```


The following example creates snapshot volume `svrw_vv0` from the snapshot `svro_vv0`:

```
cli% createsv svrw_vv0 svro_vv0
```

NOTES

A maximum of 128 writable virtual copies per volume are allowed.

COMMAND

`createtemplate`

DESCRIPTION

The `createtemplate` command creates virtual volume (VV), logical disk (LD), and common provisioning group (CPG) templates. Templates are sets of predetermined parameters that are applied to the creation of virtual volumes, logical disks, and CPGs.

SYNTAX

```
createtemplate vv|ld|cpg [options <arg>] <template_name>
```

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

- The following options are valid for VV, LD, and CPG templates:

`-nro`

Indicates that properties not specified in the template are set to read-only.

`-nrw`

Indicates that properties not specified in the template are set to read/write.

`-desc <description>`

Specifies a description for the created template.

`-rw`

Specifies that the objects created from the template are read-write.

`-ro`

Specifies that the objects created from the template are read-only.

`-t r0|r1|r5`

Specifies the RAID type of the logical disk. Enter `r0` for RAID 0, `r1` for RAID 10, or `r5` for RAID 50. If no RAID type is specified, the default is `r1` (RAID 10).

`-ssz <size_number_chunklets>`

Specifies the set size in the number of chunklets. Enter 1 for RAID 0, an integer from 2 through 4 for RAID 10 and an integer from 3 through 9 for RAID 5. If not specified, the default value for RAID 10 is 2 and the default value for RAID 5 is 4.

`-rs <size>`

Specifies the number of sets in a row using an integer from 1 through 2147483647. If not specified, no row limit is imposed.

`-ss <size_KB>`

Specifies the step size from 32 KB to 512 KB. The step size should be a power of 2 and a multiple of 32. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha port | cage | mag`

Specifies that RAID-1 or RAID-5 can support a failure of one port pair, one cage, or mag. For RAID-1 and RAID-5, the default for the snap admin and snap data areas is cage. For RAID-0, the default for the snap admin area is cage.

`-ch first | last`

Specifies the chunklet characteristics, either *first* (fastest chunklets) or *last* (slowest chunklets). If no argument is specified, the default characteristic is *first*.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (*item*). Multiple nodes are separated with a single comma (1,2,3). A range of nodes is separated with a hyphen (0-7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0–7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0–4). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0–3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devId`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>,<ID>,...`

Specifies that physical disks identified by their device IDs are selected for virtual volume and logical disk creation. Device IDs can be specified in a comma-separated list. Issue the `showpd -i` command for a list of physical disk device IDs for use with the `-devid` option.

`-devtype <device_type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

- The following options are used only for VV templates:

`-type cpvv|tpvv|none`

Specifies the type of virtual volume that the template is being created. Valid arguments are `cpvv`, `tpvv`, or `none`. Use `cpvv` if the `-cpg <CPG_name>` option is used. If creating a template for creating TPVVs, use `tpvv`. If `cpvv` or `tpvv` are not specified, the default value is `none` meaning the created template is applicable for the creation of any volume type.

`-cpg <CPG_name>`

Specifies that the snapshot data space and snapshot administration space are provisioned from the indicated CPG (`<CPG_name>`).

`-size <size>`

Specifies the size of the virtual volume and logical disk.

`-szs <size>[g|G]`

By default, specifies the size of the snapshot volume in megabytes using an integer from 0 through 2096128 (2047 GB). Size can optionally be displayed in gigabytes by using the `g|G` parameter. If not specified, snapshot space is 0. This option cannot be used with the `-pct` option.

`-pct <prc>`

Specifies the size of the snapshot volume as a percentage of your user volume. If not specified, the default value is 0 percent of your user volume. This option cannot be used with the `-szs` option. If used with the `-cpg <CPG_name>` option, the percentage value is 0.

`-aw <percent>`

Sets the *allocation warning*, the user-defined threshold that the system generates an alert for CPVVs or TPVVs created with this template. This threshold is a percentage of the volume's virtual size.

`-al <percent>`

Sets the *allocation limit*, the user-defined threshold at which writes fail, preventing a CPVV or TPVV created with this template from consuming additional resources from their CPG. This threshold is a percentage of the volume's size.

`-spt <sectors_per_track>`

Allows you to define the virtual volume geometry sectors per track value that is reported to the hosts through the SCSI mode pages. The valid range is from 4 to 8192 and the default value is 304.

`-hpc <heads_per_cylinder>`

Allows you to define the virtual volume geometry heads per cylinder value that is reported to the hosts through the SCSI mode pages. The valid range is from 1 to 1024 and the default value is 8.

`-pol no_stale_ss|stale_ss|one_host|no_one_host|tp_bzero|no_tp_bzero`

Specifies the policy that the created virtual volume follows. If an argument is not specified, the option defaults to `stale_ss`.

`stale_ss`

Specifies that invalid snapshot volumes are permitted. Failure to update snapshot data does not affect the write to the base volume. However, the snapshot is considered invalid.

`no_stale_ss`

Specifies that invalid snapshot volumes are not permitted. A failure to update a snapshot is considered a failure to write to the base volume.

`one_host`

This constrains the export of a volume to one host or one host cluster (when cluster names can be used as a host name).

`no_one_host`

This policy should only be used when exporting a virtual volume to multiple hosts for use by a cluster-aware application, or when "port presents" VLUNs are used. This is the default policy setting.

`tp_bzero`

Specifies that if a host write results in the allocation of a new data page that is only partially filled by the host write, then a zero-fill is performed on the unwritten portion of the data page to ensure that the host cannot read data from deleted volumes or snapshot. The default allocation page size is 16 KB.

`no_tp_bzero`

Specifies that the zero-fill operation is bypassed on the allocation of partially written data pages.

- The following options are only used for CPG templates:

`-aw <percent>`

Specifies the percentage of used snapshot administration or snapshot data space that results in a warning alert. A percent value of 0 disables the warning alert generation. The default is 0.

`-sdgs <size>`

Specifies the amount of logical disk storage created on each auto-grow operation. If `<size>` is non-zero it must be 8192 (8G) or bigger. A size of 0 disables the auto-grow feature. The default auto-grow size is fixed at 32G, but the minimum auto-grow is a function of the number of online nodes in the system:

Number of Nodes	Default	Minimum
1-2	32G	8G
3-4	64G	16G
5-6	96G	24G
7-8	128G	32G

`-sdgl <size>`

Limits the auto-grow from exceeding this storage amount. A size of 0 means no limit is enforced. The default is 0.

`-sdgw <size>[g|G]`

Issues a warning alert when the used logical disk space exceeds this amount. A size of 0 means no warning limit is enforced. The default is 0. The size can be specified in megabytes (default). To specify the size in gigabytes, enter `g` or `G` directly after the specified size (no space).

SPECIFIERS

`vv|ld|cpg` Specifies that the template is for the creation of a virtual volume (VV), logical disk (LD), or common provisioning group (CPG).

`<template_name>`

Specifies the name of the template, using up to 31 characters.

RESTRICTIONS

- A read-only snapshot of a read-only source volume is not allowed.
- A read/write snapshot of a read/write snapshot is not allowed.

EXAMPLES

The following example creates a virtual volume called `vvr1`. The `-ha` and `-pol` option values are fixed. The RAID type can be changed when the virtual volume is created. Note that if patterns are specified, it is not possible to mix read-only and read/write pattern specifications.

```
cli$ createtemplate vv -ha mag -rw -t r1 -ro -pol stale_ss vvr1
```

The command rejects the pattern.

```
cli$ createtemplate vv -ro -p -nd 0 -rw -p -mg 1,2 vpatt vvr1
```

NOTES

- By default, logical disk are created using only physical disks with the same device type. (By default, the Fibre Channel device type is used). Use the `-p devtype NL` option to override this default. Use `showpd -i` to see the device types of physical disks in the system.
- The value for `-ssz` and `-rs` can be set to `-`. This can be used in conjunction with the (default) read-only property for options to ensure that their value cannot be changed when a virtual volume or logical disk or CPG is created and the system is used to set the default values for these options.

COMMAND

`createtpvv`

DESCRIPTION

This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

The `createtpvv` command creates a thinly provisioned virtual volume (TPVV).

AUTHORITY

Super, Edit

SYNTAX

`createtpvv [options <arg>] <CPG_name> <VV_name> <virtual_size>[g|G]`

OPTIONS

`-templ <template_name>`

Specifies that options from templates created using the `createtemplate` command are applied to TPVVs created with the `createtpvv` command. If the template is read-write, it can be overridden with new options as specified with `createtpvv`. Read-only templates cannot be overridden.

`-i <ID>`

Specifies the virtual volume ID using an integer from 1 through 4095.

`-cnt <count>`

Creates a number of virtual volumes (1 through 64) as specified by the `<count>` argument. Created volumes are named by the system; beginning with `<VV_name>.0` and continuing through `<VV_name>.<count-1>`, where `<VV_name>` is the name of the virtual volume. If the `-i` option is specified, the volume ID is used as the ID of `<VV_name>.0` and incremented by 1 for each subsequent volume.

`-aw <percent>`

Specifies the threshold for the TPVV's allocation warning. When snapshot data space of the virtual volume exceeds the specified percentage of the virtual volume size, a warning alert is generated.

`-al <percent>`

Specifies the TPVV's allocation limit. The snapshot data space of the virtual volume is prevented from growing beyond the specified percentage of the virtual volume size. Once the limit is reached, new writes to the TPVV fail.

`-spt <sectors_per_track>`

Allows you to define the virtual volume geometry `sectors_per_track` value that is reported to the hosts through the SCSI mode pages. The valid range is from 4 to 8192 and the default value is 304.

`-hpc <heads_per_cylinder>`

Allows you to define the virtual volume geometry `heads_per_cylinder` value that is reported to the hosts through the SCSI mode pages. The valid range is from 1 to 1024 and the default value is 8.

`-pol no_stale_ss|stale_ss|one_host|no_one_host|tp_bzero|no_tp_bzero`

Specifies the policy that the created volume follows. If an argument is not specified, the option defaults to `stale_ss`.

`stale_ss`

Specifies that invalid snapshot volumes are permitted. Failure to update snapshot data does not affect the write to the base volume. However, the snapshot is considered invalid.

`no_stale_ss`

Specifies that invalid snapshot volumes are not permitted. A failure to update a snapshot is considered a failure to write to the base volume.

`one_host`

This constrains the export of a volume to one host or one host cluster (when cluster names can be used as a host name).

`no_one_host`

This policy should only be used when exporting a virtual volume to multiple hosts for use by a cluster-aware application, or when "port presents" VLUNs are used. This is the default policy setting.

`tp_bzero`

Specifies that if a host write results in the allocation of a new data page that is only partially filled by the host write, then a zero-fill is performed on the unwritten

portion of the data page to ensure that the host cannot read data from deleted volumes or snapshot. The default allocation page size is 16 KB.

`no_tp_bzero`

Specifies that the zero-fill operation is bypassed on the allocation of partially written data pages.

SPECIFIERS

`<CPG_name>`

Specifies the name of the CPG from which the TPVV is created.

`<VV_name>`

Specifies the name of the TPVV, using up to 31 characters.

`<virtual_size>[g|G]`

Specifies the size of the TPVV in MB (default) or GB (g or G). The maximum size is 2096128 MB (2047 GB). If the size is taken from a template, this field should be `-`.

RESTRICTIONS

None.

EXAMPLES

The following example displays the creation of a TPVV named `tpvv1`:

```
cli% createtpvv -aw 50 -al 75 cpg1 tppv1 1g
```

In the preceding example, a 1G TPVV named `tpvv1` is allocated from a CPG named `cpg1` and its allocation warnings and limits are set at 50% and 75%, respectively.

NOTES

- Options not explicitly specified in a template (if used for TPVV creation) use their default values. If the `-size` and `-cpg` options were not used in the creation of the template being applied to TPVV creation, these options are treated as read-write, even if other template properties are read-only.
- TPVV snapshots consume the same snapshot data space that is used to store application writes. The TPVV's allocation limit should be configured accordingly.

COMMAND

`createuser`

DESCRIPTION

The `createuser` command allows a Super user to create a new user account with a specified name and privilege level in a specified domain.

SYNTAX

```
createuser [option <arg>] <user_name> <domain_name> <privilege_level>
```

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

Only one of the following options can be specified:

`-c <clear-text_password>`

Specifies the user's password in the clear-text format. The password must be at least six characters long.

`-e <encrypted_password>`

Specifies the user's password in the encrypted format. The password must be at least six characters long.

SPECIFIERS

`<user_name>`

Specifies the name of the user, using up to 31 non null characters. Valid characters are alphanumeric (letters and digits), a period (.), a dash (-), or an underscore (_). The first character must either be alphanumeric or an underscore.

`<domain_name>`

Specifies the name of the domain in which the created user will belong. The domain name can be up to 31 characters long.

<privilege_level>

Specifies the privilege level you wish to assign to the created user. The privilege level can be specified as *Super*, *Service*, *Edit*, or *Browse*. For information about each privilege level, see the *InForm OS Concepts Guide*.

RESTRICTIONS

Encrypted passwords are generated by the system. Therefore, you can only specify previously generated encrypted passwords. All passwords must be at least six characters long.

EXAMPLES

The following example displays the successful creation of a new user `user1` with the clear-text password `123456`, with access to all service pools, and with edit level authority:

```
cli% createuser -c 123456 user1 all edit
User created
```

NOTES

- If no password is specified using the `-c` or `-e` options, then you will be prompted for a clear-text password.
- Upon the successful creation of a new user, the command will issue a `User created` message.
- Verify the creation of a new user by issuing the `showuser` command. See [showuser](#) on page 22.157 for more information.

COMMAND

`createvlun`

DESCRIPTION

The `createvlun` command creates a VLUN template that enables export of a virtual volume as a SCSI VLUN to a host or hosts. A SCSI VLUN is created when the current system state matches the rule established by the VLUN template.

There are three types of VLUN templates:

- `port presents` - created when only the `node:slot:port` are specified. The VLUN is visible to any initiator on the specified port.
- `host sees` - created when the `hostname` is specified. The VLUN is visible to the initiators with any of the host's WWNs.
- `matched set` - created when both `hostname` and `node:slot:port` are specified. The VLUN is visible to initiators with the host's WWNs only on the specified port.

Conflicts between overlapping VLUN templates are resolved using prioritization, with `port presents` templates having the lowest priority and `matched set` templates having the highest.

SYNTAX

The syntax for the `createvlun` command can be one of the following:

- `createvlun [options]<VV_name> <LUN> <node:slot:port>`
- `createvlun [options]<VV_name> <LUN> <host_name>`
- `createvlun [options <arg>] <VV_name> <node:slot:port> <host_name>`

AUTHORITY

Super, Edit

OPTIONS

`-f`

Specifies that the operation is forced and that the VLUN is created even if the specified virtual volume has existing VLUNs. Unless the `-f` option is specified, the command asks for confirmation if a virtual volume is already exported in a VLUN template.

`-cnt <number>`

Specifies that a sequence of VLUNs, as specified by the `num` argument, are exported to the same system port and host that is created. The `num` argument can be specified as any integer. For each VLUN created, the `.int` suffix of the `VV_name` specifier and LUN are incremented by one.

`-novcn`

Specifies that a VLUN Change Notification (VCN) not be issued after export. For direct connect or loop configurations, a VCN consists of a Fibre Channel Loop Initialization Primitive (LIP). For fabric configurations, a VCN consists of a Registered State Change Notification (RSCN) that is sent to the fabric controller.

`-ovrd`

Specifies that existing lower priority VLUNs will be overridden, if necessary. Can only be used when exporting to a specific host.

SPECIFIERS

`<VV_name>`

Specifies the virtual volume name, using up to 31 characters. The volume name is provided in the syntax of `basename.int`.

`<LUN>`

Specifies the LUN as an integer from 0 through 65536.

`<host_name>`

Specifies the host where the LUN is exported, using up to 31 characters.

`<node:slot:port>`

Specifies the system port of the virtual LUN export.

`node`

Specifies the system port, where the node is a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the node, where the slot is a number from 0 through 5.

`port`

Specifies the port number on the FC card, where the port number is 1 through 4.

RESTRICTIONS

None.

EXAMPLES

The following example exports virtual volume `test` on LUN 2:

```
cli% createvln test 2 testhost
```

NOTES

- If a volume is already exported as a VLUN, you will be prompted for confirmation if a new export of the same volume is attempted.
- The host and port can both be supplied when issuing this command (matched set). This is the most restrictive access as both the host name and port must match before access to the VLUN is granted.
- Verify the creation of VLUNs by issuing the `showvln` command. See [showvln](#) on page 22.164 for more information.
- The InForm CLI only allows VLUN numbers up to 16383.
- Conflicts between overlapping VLUN templates are resolved by a priority order among templates with matched set being the highest and port presents the lowest.

COMMAND

`createvv`

DESCRIPTION

The `createvv` command creates volumes that are provisioned from one or more common provisioning groups. Volumes can be fully provisioned from a CPG or can be thinly provisioned. You can optionally specify a CPG for snapshot space for fully provisioned volumes.

SYNTAX

```
createvv [options <arg>] <usr_CPG> <VV_name> <size>[g|G]
```

AUTHORITY

Edit



NOTE: You need access to all domains in order to run this command with logical disks specified.

OPTIONS

`-templ <template_name>`

Uses the options defined in the specified template. The template is created using the `createtemplate` command. Options specified in the template are either read-only or read-write. Read-write options can be overridden with new options at the time of creation, but read-only options cannot be overridden at creation time.

Options not explicitly specified in the template take their default values, and all of these options are either read-only or read-write (using the `-nro` or `-nrw` options of the `createtemplate` command). If not included, the `-size` and `-cpg <CPG_name>` options are automatically treated as read-write even if the other non included properties are marked read-only.

This option is not valid for volumes that are fully provisioned from a CPG.

`-i <ID>`

Specifies the ID of the created volume. The default is the next available ID.

`-cnt <count>`

Specifies the number of identical virtual volumes to create using an integer from 1 to 999. For thinly provisioned virtual volumes (TPVVs), this must be an integer from 1 to 64. The

names of the volumes are `<VV_name>.0` through `<VV_name>.<count-1>`. If the ID is specified, it is used as the ID of `VV_name.0` and incremented by 1 for each subsequent volume.

`-spt <sectors_per_track>`

Allows you to define the virtual volume geometry `sectors_per_track` value that is reported to the hosts through the SCSI mode pages. The valid range is from 4 to 8192 and the default value is 304.

`-hpc <heads_per_cylinder>`

Allows you to define the virtual volume geometry `heads_per_cylinder` value that is reported to the hosts through the SCSI mode pages. The valid range is from 1 to 1024 and the default value is 8.

`-pol <pol>[, <pol>...]`

Allows you to set the policy of a virtual volume. If an argument is not specified, the option defaults to `no_one_host`. The available policies are:

`stale_ss`

Allows stale (invalid) snapshots. This means that failures to update the snapshot data do not affect the writing to the base volume, but the snapshot is then considered invalid. This is the default setting for all volumes.

`no_stale_ss`

Specifies that invalid snapshot volumes are not permitted. A failure to update a snapshot is considered a failure to write to the base volume.

`one_host`

This constrains the export of a volume to one host or one host cluster (when cluster names can be used as a host name).

`no_one_host`

This policy should only be used when exporting a virtual volume to multiple hosts for use by a cluster-aware application, or when port presents VLUNs are used. This is the default policy setting.

`tp_bzero`

For thin provisioned volumes, when a host write results in the allocation of a new data page that is only partially filled by the host write, then you can do a zero-fill on the unwritten portion of the page to ensure that the host never reads old data from

any deleted volumes or snapshots. The current allocation page size is 16kb. This is the default setting.

`no_tp_bzero`

Using this option bypasses the zero-fill stage on the allocation of partially written data pages. This is a performance improvement setting for thin provisioned volumes.

The following options can be used when creating thinly provisioned virtual volumes (TPVVs):

`-tpvv`

Specifies that the created volume is a TPVV.

`-usr_aw <percent>`

Indicates a user space allocation warning. Generates a warning alert when the user data space of the TPVV exceeds the specified percentage of the virtual volume size.

`-usr_al <percent>`

Indicates the user space allocation limit. The user space of the TPVV is prevented from growing beyond the indicated percentage of the virtual volume size. After this limit is reached, any new writes to the virtual volume will fail.

The following options can be used when creating fully provisioned volumes:

`-snp_cpg <snap_cpg>`

The name of the CPG from which the snapshot space is allocated.

`-snp_aw <percent>`

Provides a snapshot space allocation warning. Generates a warning alert when the snapshot space of the virtual volume exceeds the specified percentage of the virtual volume size.

`-snp_al <percent>`

Provides a snapshot space allocation limit. The snapshot space of the virtual volume is prevented from growing beyond the indicated percentage of the virtual volume size. After being reached, new writes to the virtual volume will fail.

SPECIFIERS

`<usr_CPG>`

Specifies the name of the common provisioning group (CPG) from which the volume user space will be allocated. If the `-tpvv` option is specified, the volume is thinly provisioned.

Otherwise, the volume is fully provisioned from the specified CPG. If the name of the CPG is to be taken from a template, this field should be “-”.

<VV_name>

Specifies the virtual volume name, using up to 31 characters in length. If the `-cnt` option is used, a dot and sequence number will be appended. The final name has this same constraint.

<size>[g|G]

Specifies the size for the user volume in MB (maximum of 2096128 MB). If the value is followed by a g or G, (no whitespace before g or G) the size is in GB. If the size is to be taken from a template, this field should be “-”.

RESTRICTIONS

The `-templ` option is not valid for volumes that are fully provisioned from a CPG.

EXAMPLES

The following example creates a 10G TPVV named TPVV1 whose user space is allocated from the common provisioning group CPG1:

```
cli% createvv -tpvv -usr_aw 50 -usr_al 75 CPG1 TPVV1 10G
```

NOTES

- Verify the creation of virtual volumes by issuing the `showvv` command. See [showvv](#) on page 22.169 for more information.
- For this command, KB = 1024 bytes, MB = 1048576 bytes, GB = 1073741824 bytes.

COMMAND

`createvvcopy`

DESCRIPTION

The `createvvcopy` command creates a full physical copy of a virtual volume or a read/write virtual copy on another virtual volume. This enables you to create copies of virtual volumes to perform tasks such as moving data to a larger virtual volume or creating a copy of data for testing.

SYNTAX

The syntax for the `createvvcopy` command can be one of the following:

- `createvvcopy -p <parent_volume> [options] <destination_volume>`
- `createvvcopy -r [options] <destination_volume>`
- `createvvcopy -halt <destination_volume>`

AUTHORITY

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OPTIONS

`-p <parent_volume>`

Specifies that a snapshot of the specified parent volume is created and copied to a specified destination volume (as indicated with the `<destination_volume>` specifier). The parent volume must be a base volume or read/write snapshot. This option cannot be used with the `-r` option.

`-r`

Specifies that the destination volume be resynchronized with its parent volume using a saved snapshot so that only the changes since the last copy or resynchronization need to be copied. A snapshot of the parent saved using the `-s` option in an earlier `createvvcopy` instance is required for the resynchronization operation. This old snapshot is replaced by a new snapshot for the next resynchronization operation (the `-s` option is implied, and need not be specified). This option cannot be used with the `-p` option.

`-halt`

Specifies that an ongoing physical copy or snapshot promotion should be stopped.

-s

Saves the snapshot of the source volume after the copy of the volume is completed. This enables a fast copy for the next resynchronization. If not specified, the snapshot is deleted and the association of the destination volume as a copy of the source volume is removed. The **-s** option is implied when the **-r** option is used and need not be explicitly specified.

-b

Specifies that this command blocks until the operation is completed. If not specified, the `createvvcopy` command operation is started as a background task.

SPECIFIERS

`<destination_volume>`

Specifies the destination volume name for the copy operation using up to 19 characters. The destination volume must be a writable base volume (not a snapshot) of equal or greater size than a parent volume (if specified) and it must not be exported as a VLUN.

RESTRICTIONS

- The source and destination volumes must be writable.
- The destination volume cannot be exported as a VLUN before or during the `createvvcopy` command process.
- The destination volume must be greater than or equal in size to the source volume.
- If the **-s** option is specified to save a snapshot for fast resynchronization and the snapshot goes stale, the copy fails.
- A physical copy of a virtual volume fails in any situation that a snapshot copy fails or when there is insufficient snapshot space or I/O errors.

EXAMPLES

The following example displays the creation of a copy of the virtual volume `vv1`:

```
cli% createvvcopy -p vv1 vv2
Started copy. child=vv2 parent=vv1
```

NOTES

- The `createvvcopy` command can be issued multiple times. However, the InServ system allows only two active physical copy tasks to run concurrently. Any additional physical copy tasks are queued, pending the completion of the active physical copy tasks.

- Multiple physical copy operations can occur simultaneously. Host-initiated I/O operations and those operations initiated by issuing the `createvvcopy` command are executed at the same priority level. As a result, noticeable performance degradation from a host perspective can be observed.
- Issuing the `createvvcopy` command results in the creation of a temporary snapshot and, in the case of `-r`, a resynchronization (resync) snapshot.
 - ◆ The temporary and resynchronization snapshots cannot be deleted while the copy is in progress.
 - ◆ Upon completion of the copy, the temporary snapshot is automatically deleted if the `-s` option is not specified.
 - ◆ If the resynchronization snapshot is saved, it can later be manually deleted. If the resynchronization snapshot is deleted, later resynchronization is not possible.
- If the `-s` option is not specified, the relationship between the destination volume and source volume is not retained.
- Issue the `showvv` command to verify that a virtual volume copy has been made.
- Issue the `showvv -d` command to display the number of blocks remaining to be copied.
- This command can be issued multiple times. However, the InServ system allows only two active physical copy tasks to run concurrently. Any additional physical copy tasks are queued, pending the completion of the active physical copy tasks.

12

Dismiss Commands

In this chapter

<code>dismisspd</code>	12.2
<code>dismissrcopylink</code>	12.3
<code>dismissrcopyvv</code>	12.5

COMMAND

dismisspd

DESCRIPTION

The `dismisspd` command removes physical disk definitions from system use.

SYNTAX

`dismisspd <PD_ID>...`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

None

SPECIFIERS

`<PD_ID>...`

Specifies the physical disk(s), identified by integers, to be removed from system use.

RESTRICTIONS

A physical disk that is in use cannot be removed.

EXAMPLES

The following example removes a physical disk with ID 1:

```
cli% dismisspd 1
```

NOTES

Verify the removal of a physical disk by issuing the `showpd` command. See [showpd](#) on page 22.77 for more information.

COMMAND

`dismissrcopylink`

DESCRIPTION

The `dismissrcopylink` command removes one or more links (connections) created with the `admitrcopylink` command to a target system.

SYNTAX

- Syntax for Remote Copy over IP (RCIP) is as follows:

`dismissrcopylink <target_name> <node:IP_address>...`

- Syntax for Remote Copy over FC (RCFC) is as follows:

`dismissrcopylink <target_name> <N:S:P:WWN>...`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

`<target_name>`

The target name, as specified with the `creatercopytarget` command (see [creatercopytarget](#) on page 11.42).

`<node:IP_address>...`

For RCIP. Specifies a list of node number and IP address pairs. The list pairs are made up of a node with a GbE interface on the active system and the IP address of a GbE interface on the backup system.

`<N:S:P:WWN>...`

Specifies the node, slot, and port of the fibre channel port on the local system and a world wide name (WWN) address on the target system. This specifier can be repeated.

RESTRICTIONS

- Functionality of this command requires a 3PAR Remote Copy license. Contact your local service provider for more information.
- Use this command only to remove sending links. See the *Remote Copy User's Guide* for more details on sending and receiving links.
- This command cannot be used to remove the last link of a target system with started groups.

EXAMPLES

The following example removes the link from node 1 of System2:

```
cli% dismissrcopylink System2 1:193.1.2.11
```

NOTES

- See the *Remote Copy User's Guide* for more examples and for recommended link naming conventions.
- This command terminates with a list of one or more links to be dismissed.
- For IP targets, this list is made up of pairs composed of the node containing the Ethernet port on the local system and an IP address on the target system.
- For Fibre Channel targets, this list is made up of sets with the node, slot, and port of the fibre channel port on the local system and a WWN address on the target system.

COMMAND

`dismissrcopyvv`

DESCRIPTION

The `dismissrcopyvv` command removes a virtual volume from a Remote Copy volume group.

SYNTAX

`dismissrcopyvv <VV_name> <group_name>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

`<VV_name>`

The name of the volume to be removed. Volumes are added to a group with the `admitrcopyvv` command.

`<group_name>`

The name of the group that currently includes the virtual volume.

RESTRICTIONS

- Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.
- A volume cannot be removed from a group that is not currently stopped.

EXAMPLES

The following example removes virtual volume `vv1` from `Group1`:

```
cli% dismissrcopyvv vv1 Group1
```

NOTES

- The `dismissrcopyvv` command removes any Remote Copy synchronization snapshots affiliated with the removed volume.
- If a group's target has the `mirror_config` policy set and the group is a primary group, then this command is mirrored to that target and the volume is removed from the corresponding secondary group. If the policy is set and the group is a secondary, then this command fails.

13

Free Command

In this chapter

`freespace`

13.2

COMMAND

freespace

DESCRIPTION

The `freespace` command frees snapshot administration and snapshot data spaces from a virtual volume if they are not in use.

SYNTAX

`freespace [options] <VV_name>...|<pattern>...`

AUTHORITY

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OPTIONS

`-pat`

The specified patterns are treated as glob-style patterns. Additionally, the snapshot administration and snapshot data spaces from all volumes matching the specified pattern.

`-f`

Suppresses the prompt for confirmation that appears before removing the snapshot administration and snapshot data space of each volume.

`-keepld`

After the snapshot administration and snapshot data spaces have been unmapped, the underlying logical disks are not removed. Without this option, logical disks are removed when they are unused and are not part of a CPG.

SPECIFIERS

`<VV_name>...`

Specifies the virtual volume name, using up to 31 characters.

`<pattern>...`

Specifies a glob-style pattern. This specifier can be repeated to compact multiple volumes. If this specifier is not used, the `VV_name` specifier must be used. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

This command can only be used to free snapshot administration and snapshot data space if it is not used by TPVVs or snapshots. If the specified volume is a TPVV or if it has any snapshots, the command fails.

EXAMPLES

The following example demonstrates how to remove SA and SD space from virtual volume testd:

```
cli% freespace testd
Free SA and SD space of VV testd
select q=quit y=yes n=no: y
Unused LDs for this VV:
    testd.adm.0
    testd.adm.1
    testd.snp.0
    testd.snp.1
    testd.snp.2
    testd.snp.3
Are you sure you want to remove these unused LDs?
select y=yes n=no: y
Removing ld testd.adm.0
Removing ld testd.adm.1
Removing ld testd.snp.0
Removing ld testd.snp.1
Removing ld testd.snp.2
Removing ld testd.snp.3
```

NOTES

None.

14

Grow Commands

In this chapter

<code>growaldv</code>	14.2
<code>growavv</code>	14.9
<code>growtpvv</code>	14.11
<code>growvv</code>	14.13

COMMAND

growaldivv

DESCRIPTION

The `growaldivv` command automatically enlarges (grows) the size of a virtual volume by adding underlying logical disks. This command was deprecated in the 2.2.4 release and will be changed or removed in a future release. Please use the `growvv` command in the future.

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NOTE: You need access to all domains in order to run this command.

SYNTAX

The syntax for the `growaldivv` command can be any of the following:

- `growaldivv -szu <size> [options <arg>] <VV_name>`
- `growaldivv -szs <size> [options <arg>] <VV_name>`
- `growaldivv -sza <size> [options <arg>] <VV_name>`
- `growaldivv -szu <size> -szs <size> [options <arg>] <VV_name>`
- `growaldivv -szu <size> -sza <size> [options <arg>] <VV_name>`
- `growaldivv -szu <size> -szs <size> -sza <size> [options <arg>] <VV_name>`

OPTIONS

`-szu <size>[g|G]`

Specifies the size of the user volume in megabytes using an integer from 0 through 2096128 (2047 GB). Size can optionally be specified in gigabytes by providing either the `g` or `G` options following (no whitespace between) the entered size value.

`-sza <size>[g|G]`

Specifies the size of the administration volume in megabytes using an integer from 0 through 1073741568 (1048575.75 GB). Size can optionally be specified in gigabytes by

providing either the `g` or `G` options following (no whitespace between) the entered size value. This option cannot be used with the `-pct` option.

`-szs <size>[g|G]`

Specifies the size of the snapshot volume in megabytes using an integer from 0 through 1073741568 (1048575.75 GB). Size can optionally be specified in gigabytes by providing either the `g` or `G` options following (no whitespace between) the entered size value. This option cannot be used with the `-pct` option or if the VV is associated with a CPG.

`-f`

Suppresses the requested confirmation before growing a virtual volume with a different RAID type than the last region of the existing virtual volume.

`-t <RAID_type>`

Specifies the RAID type with `r0`, `r1` or `r5`. If not specified, the default RAID type is the same as the last region of the existing virtual volume. Specifying a different RAID type than the existing virtual volume results in a warning message and a prompt for confirmation unless the `-f` option is specified.

`-ssz <size_number_chunklet>`

Specifies the set size in terms of chunklets. The default depends on the RAID type specified. If the RAID type is not specified or if the same RAID type as the last region of the existing virtual volume is specified, the default is the same set size as the last region of the existing virtual volume. Otherwise, the default is 2 for RAID 1, 4 for RAID 5.

`-rs <size>`

Specifies the number of sets in a row for each logical disk using an integer from 1 through 2147483647. If not specified, no row limit is imposed.

`-ss <size_KB>`

Specifies the step size in kilobytes using 32, 64, 128, 256, or 512. The default depends on whether the RAID type is specified. If the RAID type is not specified or is the same RAID type as the last region of the existing virtual volume, the default is the same step size as the last region of the virtual volume. Otherwise, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha <port> | <cage> | <mag>`

RAID 1 or RAID 5 can support a failure of one port pair, one cage, or one mag. The default depends on whether the RAID type is specified. If the RAID type is not specified or if the same RAID type as the last region of the existing virtual volume is specified, the default is the same as the last region of the existing virtual volumes. Otherwise for RAID 1 and RAID 5, the user default, snap admin and snap data areas are cage. For RAID-0 the default for the snap admin area is cage.

`-ch first | last`

Specifies the chunklet characteristics, either first (fastest chunklets) or last (slowest chunklets). If no argument is specified, the default characteristic is `first`.

`-pct <prc>`

Specifies the required growth size of the snapshot volume as a percentage of the required growth size of your volume (as specified with the `-szu` option). This option must be used with the `-szu` option. This option cannot be used with the `-szs` option or if the VV is associated with a CPG. If not specified, the default value is zero percent of your user volume.

`-wait <secs>`

If the `growalddvv` command fails to create the logical disks, the `-wait` option specifies the number of seconds to wait before attempting to create logical disks again. If `-wait 0` is issued, space is allocated across any available clean chunklet. If this option is not used, the command attempts to create logical disks indefinitely.

`-dr`

Specifies that the command is a dry run and that no logical disks or virtual volumes are created.

`-verbose on | off`

Specifies that verbose output is either enabled (`on`) or disabled (`off`). If not specified, verbose output is disabled.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (*item*). Multiple nodes are each separated with a comma (1, 2, 3). A range of nodes is separated with a hyphen (0-7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are each separated with a comma (1, 2, 3). A range of slots is separated with a hyphen (0-7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are each separated with a comma (1, 2, 3). A range of ports is separated with a hyphen (0-4). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are each separated with a comma (1, 2, 3). A range of drive cages is separated with a hyphen (0-3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are each separated with a comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are each separated with a comma (1, 2, 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more disks. Disks are identified by one or more integers (*item*). Multiple disks are each separated with a comma (1, 2, 3). A range of disks is separated with a hyphen (0–3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid`, and `-devtype` are used to limit the disks that are used to create logical disks depending on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected. The total number of chunklets on the disks must be greater than the specified number.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected. The total number of chunklets on the disks must be less than the specified number.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected. The total number of free chunklets must be greater than the specified number.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected. The total number of free chunklets must be less than the specified number.

`-devid <ID>`

Specifies that physical disks identified by their device IDs are selected. Device IDs can be specified in a comma-separated list. Device IDs can be shown by issuing the `showpd -i` command.

`-devtype <FC|NL>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks used must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

SPECIFIERS

`<VV_name>`

Specifies the name of the virtual volume, using up to 31 characters, that you are enlarging.

RESTRICTIONS

- Option `-pct` can only be used if option `-szu` is used.
- Options `-pct` and `-szs` cannot be used in the same instance of issuing the `growaldv` command.
- One or more of the `-szu`, `-sza`, and `-szs` options must be specified.
- If enlarging either the administration or snapshot space on the virtual volume and both administration and snapshot space are zero MB, the administration and snapshot space must be enlarged together. Both, the `-sza` and `-szs` options must be specified on the command line. Specifying `-sza` or `-szs` alone is invalid.
- If the volume being enlarged has snapshot data space and snapshot administration space with sizes of 0 bytes, the `-sza` and `-szs` options must be specified together.
- This command cannot be used to grow a volume in such a way that a volume that currently only has logical disks of a particular device type (Fibre Channel or Nearline) will have logical

disks of multiple device types after the grow operation. If a virtual volume currently has logical disks of multiple device types, it is possible to grow the volume using logical disks of any device type. Use `showpd -i` to see the device types of physical disks in the system.

EXAMPLES

The following example displays the enlarging of a RAID 5 virtual volume with 3+1 parity ratio named `vv01` by 10 GB:

```
cli% growalddv -szu 10g -t r5 -ssz 4 vv01
```

NOTES

- This command was deprecated in the 2.2.4 release and will be changed or removed in a future release. Please use the `growvv` command in the future.
- A volume can be enlarged while I/O is occurring.
- When issuing the `growalddv` command, the specified options only apply to the newly enlarged sections of the volume. This can result in a virtual volume that has different characteristics in its base and grown sections.
- If options were used in the creation of the original virtual volume (`createalddv`) that were not the default option values, and not specified in the same manner when issuing the `growalddv` command, `growalddv` uses the `createalddv` default option values. This can result in a virtual volume that has different characteristics in its base and grown sections.
- By default, logical disk are created using only physical disks with the same device type (by default, the Fibre Channel device type is used). Use the `-p devtype NL` option to override this default. Use `showpd -i` to see the device types of physical disks in the system.
- If no device type is specified using the `-p -devtype` option, Fibre Channel is assumed.

COMMAND

growavv

DESCRIPTION

The `growavv` command enlarges a virtual volume with automatic mapping to the logical disks.

SYNTAX

```
growavv [options] <VV_name> <user_LD_ID> <LD_size> <user_size>  
<sa_LD_ID> <admin_size> <sd_LD_ID> <snap_size>
```

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NOTE: You need access to all domains in order to run this command.

OPTIONS

`-verbose on|off`

Specifies that verbose output is either enabled (`on`) or disabled (`off`). If not specified, verbose output is disabled.

`-dr`

Specifies that the command is a dry run and that no logical disks or virtual volumes are actually created.

SPECIFIERS

`<VV_name>`

Specifies the virtual volume name, using up to 31 characters.

`<user_LD_ID>`

Specifies the logical disks to be used as user space. The logical disks are identified by one or more integers (`item`). Integers can be provided as a single number (1), a comma separated list of numbers (1, 2, 3), or a range of numbers separated with a dash (1–4).

`<LD_size>`

Specifies the size of your area in megabytes.

<sa_LD_ID>

Specifies the logical disks to be used as snapshot administrator space. The logical disks are identified by one or more integers (*item*). Integers can be provided as a single number (1), a comma separated list of numbers (1 , 2 , 3), or a range of numbers separated with a dash (1–4).

<admin_size>

Specifies the size of the administrator space in megabytes.

<sd_LD_ID>

Specifies the logical disks to be used as snapshot data space. The logical disks are identified by one or more integers (*item*). Integers can be provided as a single number (1), a comma separated list of numbers (1 , 2 , 3), or a range of numbers separated with a dash (1–4).

<snap_size>

Specifies the size of the snapshot space in megabytes.

RESTRICTIONS

None.

EXAMPLES

The following example displays the enlarging of the user, administrator, and snapshot space of virtual volume `vv0` by 256 MB:

```
cli% growavv vv0 0 256 1 256 2 256
```

NOTES

- A volume can be enlarged while I/O is occurring.
- This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

COMMAND

growtpvv

DESCRIPTION

This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

The `growtpvv` command enlarges a thinly provisioned virtual volume (TPVV).

AUTHORITY

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SYNTAX

`growtpvv <size>[G|g] <TPVV_name>`

OPTIONS

None.

SPECIFIERS

`<size>[G|g]`

Specifies the size in megabytes using an integer from 1 through 2096128 (2047 GB). Size can be optionally specified in gigabytes by providing either the `g` or `G` options following (no whitespaces between) the entered size value.

`<TPVV_name>`

Specifies the TPVV's name, using up to 31 characters.

RESTRICTIONS

None.

EXAMPLES

The following example displays the virtual volume being grown by 1 GB, to a total of 5 GB.

```
cli% growtpvv 1g tpvv
cli% showvv
Id          Name          Type CopyOf BsId Rd   State AdmMB SnapMB userMB
0           tpvv Base,tpvv  ---   0 RW  started  128   512   5120
-----
1           total LD              128   512    0
total virtual              -    -   5120
```

NOTES

A volume can be enlarged while I/O is occurring.

COMMAND

growvv

DESCRIPTION

The `growvv` command increases the size of a virtual volume created with the `createvv` or `createtpvv` commands.

SYNTAX

```
growvv <VV_name> <size>[g|G]
```

AUTHORITY

Super, Edit



NOTE: You need access to all domains with logical disks specified in order to run this command.

OPTIONS

None.

SPECIFIERS

<VV_name>

Specifies the name of the virtual volume to grow.

<size>[g|G]

Specifies the size in MB to be added to the volume user space. The size should be an integer in the range from 1 to 2096128. If the value is followed by a `g` or `G`, (no whitespace before `g` or `G`) the size is in GB. The volume size is automatically rounded up to the next multiple of 256MB.

RESTRICTIONS

None.

EXAMPLES

The following example displays the enlarging of the of virtual volume `vv0` by 10 G:

```
cli% growvv vv0 10g
```

NOTES

For this command:

- KB = 1024 bytes
- MB = 1048576 bytes
- GB = 1073741824 bytes.

15

Hist Commands

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COMMAND

histch

DESCRIPTION

The `histch` command displays a histogram of service times in a timed loop for individual chunklets.

SYNTAX

`histch [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-ld <LD_name>`

Specifies the logical disk, identified by name, from which chunklet statistics are sampled.

`-ch <chunklet_num>`

Specifies that statistics are limited to only the specified chunklet, identified by number.

`-metric both|time|size`

Selects which metric to display. Metrics can be one of the following:

- ◆ `both` - (Default) Displays both I/O time and I/O size histograms.
- ◆ `time` - Displays only the I/O time histogram.
- ◆ `size` - Displays only the I/O size histogram.

`-timecols <fcol> <lcol>`

For the I/O time histogram, show the columns from the first column `<fcol>` through last column `<lcol>`. The available columns range from 0 through 31.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 6).
- ◆ The last column (`<lcol>`) must be less than or equal to 31 (default value of 15).
- ◆ The first column includes all data accumulated for columns less than the first column and the last column includes accumulated data for all columns greater than the last column.

`-sizecols <fcol> <lcol>`

For the I/O size histogram, show the columns from the first column (<fcol>) through the last column (<lcol>). Available columns range from 0 through 15.

- ◆ The first column (<fcol>) must be a value greater than or equal to 0, but less than the value of the last column (<lcol>) (default value of 3).
- ◆ The last column (<lcol>) must be less than or equal to 15 (default value of 11).

`-pct`

Shows the access count in each bucket as a percentage.



NOTE: For the following options, by default the histogram shows data from the start of the command.

`-prev|-begin`

Specifies that the histogram displays data either from a previous sample (`-prev`) or from when the system was last started (`-begin`). If no option is specified, the histogram shows data from the beginning of the command's execution.

`-rw`

Specifies that the display includes separate read and write data. If not specified, the total is displayed.

`-d <secs>`

Specifies the interval in seconds that statistics are sampled from using an integer from 1 through 2147483. If no count is specified, the command defaults to 2 seconds.

`-iter <number>`

Specifies that the histogram is to stop after the indicated number of iterations using an integer from 1 through 2147483647.

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on column number (<col>). Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting (<dir>) as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

You can specify multiple columns on the command line by using a colon (:). Rows having the same column(s) are sorted by the values in the latter specified columns.

`-filt <fspec>`

Specifies that histograms below the threshold specified by the `<fspec>` argument are not displayed. The `<fspec>` argument is specified in the syntax of `<op>,<val_ms>,<count>`.

`<op>`

The `<op>` argument can be specified as one of the following:

- ◆ `r` - Specifies read statistics.
- ◆ `w` - Specifies write statistics.
- ◆ `t` - Specifies total statistics.
- ◆ `rw` - Specifies total read and write statistics.

`<val_ms>`

Specifies the threshold service time in milliseconds.

`<count>`

Specifies the minimum number of access above the threshold service time.

`-ni`

Specifies that histograms for only nonidle devices are displayed. This option is shorthand for the option `-filt t,0,0`.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of a histogram of service times for system chunklets:

cli% histch -iter 1															
12:42:57 10/20/04 -----Time (millisec)-----															
Ldid	Ldname	LdCh	Pdid	PdCh	0.26	0.53	1.05	2.1	4.2	8.4	17	34	67	135	
2	tp-0-sa-0.0	1	21	0	0	0	0	0	0	0	0	0	0	0	0
2	tp-0-sa-0.0	0	45	0	0	0	0	0	0	0	0	0	0	0	0
1	tp-0-sa-0.1	1	20	0	0	0	0	0	0	1	0	0	0	0	0
1	tp-0-sa-0.1	0	42	0	0	0	0	0	0	1	0	0	0	0	0
0	admin.usr.0	1	22	3	0	0	0	1	0	3	2	0	0	0	0
0	admin.usr.0	0	44	3	0	0	0	0	1	3	2	0	0	0	0

total					0	0	0	1	1	8	4	0	0	0	0

For the previous example, before the `histch` command was issued, the `setstatch start` command was issued for chunklets 0 and 1 on logical disks `admin.usr.0`, `tp-0-sa-0.1`, and `tp-0-sa-0.0`.

NOTES

- The `setstatch` command must be issued to enable statistics collection on chunklets before issuing the `histch` command. See [setstatch](#) on page 21.65 for additional information.
- Each service time histogram column shows the number of accesses with service times between the time shown in the column's heading to the time shown in the heading of the column to its right (or infinity for the last column).
- Each I/O size histogram column shows the number of accesses with I/O size between the size shown in the column's heading to the size shown in the heading of the column to its right (or infinity for the last column).

COMMAND

histld

DESCRIPTION

The `histld` command displays a histogram of service times for logical disks in a timed loop.

SYNTAX

`histld [options <arg>] [<LD_name_or_pattern>...]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-domain <domain_name>...|<pattern>...`

Shows only logical disks that are in domains with names that match any of the names or patterns specified.

`-vv <VW_name>...|<pattern>...`

Show only logical disks that are mapped to virtual volumes with names that match any of the names or patterns specified.

`-metric both|time|size`

Selects which metric to display. Metrics can be one of the following:

- ◆ `both` - (Default) Displays both I/O time and I/O size histograms.
- ◆ `time` - Displays only the I/O time histogram.
- ◆ `size` - Displays only the I/O size histogram.

`-timecols <fcol> <lcol>`

For the I/O time histogram, show the columns from the first column `<fcol>` through last column `<lcol>`. The available columns range from 0 through 31.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 6).
- ◆ The last column (`<lcol>`) must be less than or equal to 31 (default value of 15).

- ◆ The first column includes all data accumulated for columns less than the first column and the last column includes accumulated data for all columns greater than the last column.

`-sizecols <fcol> <lcol>`

For the I/O size histogram, show the columns from the first column (<fcol>) through the last column (<lcol>). Available columns range from 0 through 15.

- ◆ The first column (<fcol>) must be a value greater than or equal to 0, but less than the value of the last column (<lcol>) (default value of 3).
- ◆ The last column (<lcol>) must be less than or equal to 15 (default value of 11).

`-pct`

Shows the access count in each bucket as a percentage.



NOTE: For the following options, by default the histogram shows data from the start of the command.

`-prev|-begin`

Histogram displays data either from a previous sample (`-prev`) or from when the system was last started (`-begin`). If no option is specified, the histogram shows data from the beginning of the command's execution.

`-rw`

Specifies that the display includes separate read and write data. If not specified, the total is displayed.

`-d <secs>`

Specifies the interval in seconds that statistics are sampled from using an integer from 1 through 2147483. If no count is specified, the command defaults to 2 seconds.

`-iter <number>`

Specifies that the histogram is to stop after the indicated number of iterations using an integer from 1 through 2147483647.

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

`-filt <fspec>`

Specifies that histograms below the threshold specified by the `<fspec>` argument are not displayed. The `<fspec>` argument is specified in the syntax of `<op>,<val_ms>,<count>`.

`<op>`

The `<op>` argument can be specified as one of the following:

- ◆ `r` - Specifies read statistics.
- ◆ `w` - Specifies write statistics.
- ◆ `t` - Specifies total statistics.
- ◆ `rw` - Specifies total read and write statistics.

`<val_ms>`

Specifies the threshold service time in milliseconds.

`<count>`

Specifies the minimum number of access above the threshold service time.

`-ni`

Specifies that histograms for only nonidle devices are displayed. This option is shorthand for the option `-filt t,0,0`.

SPECIFIERS

`[<LD_name _or_pattern>]...`

Specifies the logical disk(s) or pattern(s) for which the histogram data is collected.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of a histogram of service times for all logical disks:

```
cli% histld -iter 1
12:38:49 10/20/04 -----Time (millisec)-----
      Ldame 0.26 0.53 1.05 2.1 4.2 8.4 17 34 67 135
tp-0-sa-0.0    0    0    0    0    0    0    0    0    0    0
tp-0-sd-0.1    0    0    0    0    0    0    0    0    0    0
tp-0-sd-0.0    0    0    0    0    0    0    0    0    0    0
admin.usr.0    0    0    0    0    1    6    6    1    0    0
tp-0-sa-0.1    0    0    0    0    0    0    0    0    0    0
tp-0-sd-0.3    0    0    0    0    0    0    0    0    0    0
tp-0-sd-0.2    0    0    0    0    0    0    0    0    0    0
-----
      total    0    0    0    0    1    6    6    1    0    0
```

NOTES

- Each service time histogram column shows the number of accesses with service times between the time shown in the column's heading to the time shown in the heading of the column to its right (or infinity for the last column).
- Each I/O size histogram column shows the number of accesses with I/O size between the size shown in the column's heading to the size shown in the heading of the column to its right (or infinity for the last column).
- If the <LD_name_or_pattern> specifier is used, then logical disks with names that match any of the patterns are listed, otherwise all logical disks are listed. These patterns are glob-style patterns (see help on `sub, globpat`).
- Patterns are specified as regular expressions. See CLI help on `sub, regexpat` for help on regexps. Issuing `histld -n LD_name.*` displays histogram data for all logical disks whose name begins with `LD_name`.

COMMAND

histpd

DESCRIPTION

The `histpd` command displays a histogram of service times for physical disks.

SYNTAX

`histpd [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-i pdid`

Specifies the physical disk ID for which service times are displayed.

`-w WWN`

Specifies the world wide name of the physical disk for which service times are displayed.

`-nodes <node_list>`

Specifies that the display is limited to specified nodes and physical disks connected to those nodes. The node list is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1). If the node list is not specified, all disks on all nodes are displayed.

`-slots <slot_list>`

Specifies that the display is limited to specified PCI slots and physical disks connected to those PCI slots. The slot list is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1). If the slot list is not specified, all disks on all slots are displayed.

`-ports <port_list>`

Specifies that the display is limited to specified port slots and physical disks connected to those port slots. The port list is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1). If the port list is not specified, all disks on all ports are displayed.

`-devinfo`

Indicates the device disk type and speed.

`-metric both|time|size`

Selects which metric to display. Metrics can be one of the following:

- ◆ `both` - (Default) Displays both I/O time and I/O size histograms.
- ◆ `time` - Displays only the I/O time histogram.
- ◆ `size` - Displays only the I/O size histogram.

`-timecols <fcol> <lcol>`

For the I/O time histogram, show the columns from the first column `<fcol>` through last column `<lcol>`. The available columns range from 0 through 31.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 6).
- ◆ The last column (`<lcol>`) must be less than or equal to 31 (default value of 15).
- ◆ The first column includes all data accumulated for columns less than the first column and the last column includes accumulated data for all columns greater than the last column.

`-sizecols <fcol> <lcol>`

For the I/O size histogram, show the columns from the first column (`<fcol>`) through the last column (`<lcol>`). Available columns range from 0 through 15.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 3).
- ◆ The last column (`<lcol>`) must be less than or equal to 15 (default value of 11).

`-pct`

Shows the access count in each bucket as a percentage.



NOTE: For the following options, by default the histogram shows data from the start of the command.

`-prev|-begin`

Histogram displays data either from a previous sample (`-prev`) or from when the system was last started (`-begin`). If no option is specified, the histogram shows data from the beginning of the command's execution.

`-rw`

Specifies that the display includes separate read and write data. If not specified, the total is displayed.

`-d <secs>`

Specifies the interval in seconds that statistics are sampled from using an integer from 1 through 2147483. If no count is specified, the command defaults to 2 seconds.

`-iter <number>`

Specifies that the histogram is to stop after the indicated number of iterations using an integer from 1 through 2147483647.

`-sortcol <col> [,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

`-filt <fspec>`

Specifies that histograms below the threshold specified by the `<fspec>` argument are not displayed. The `<fspec>` argument is specified in the syntax of `<op>,<val_ms>,<count>`.

`<op>`

The `<op>` argument can be specified as one of the following:

- ◆ `r` - Specifies read statistics.
- ◆ `w` - Specifies write statistics.
- ◆ `t` - Specifies total statistics.
- ◆ `rw` - Specifies total read and write statistics.

`<val_ms>`

Specifies the threshold service time in milliseconds.

`<count>`

Specifies the minimum number of access above the threshold service time.

`-ni`

Specifies that histograms for only nonidle devices are displayed. This option is shorthand for the option `-filt t,0,0`.

`-p <pattern>`

Specifies the pattern of physical disks displayed in the histogram. Patterns are used to filter and select the disks displayed in the histogram. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (*item*). Multiple nodes are separated with a single comma (1, 2, 3). A range of nodes is separated with a hyphen (0–7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (<item>). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0–7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (<item>). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0–5). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (<item>). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (<item>). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0-7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (<item>). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0-3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (<item>). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0-3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>`

Specifies that physical disks identified by their device IDs are selected for virtual volume and logical disk creation. Device IDs can be specified in a comma-separated list. Issue the `showpd -i` command for a list of physical disk device IDs for use with the `-devid` option.

`-devtype <device_type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example, `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays a histogram of service times for all physical disks:

```
cli% histpd
12:36:53 10/20/04 -----Time (millisec)-----
Pdid      Port 0.26 0.53 1.05 2.1 4.2 8.4 17 34 67 135
  0      0:1:1    0    0    0    0    0    1    0    0    0    0
  1      0:1:1    0    0    0    0    0    0    0    0    0    0
  2      1:5:2    0    0    0    0    1    1    0    0    0    0
  3      0:1:1    0    0    0    0    0    0    0    0    0    0
  4      1:5:2    0    0    0    1    1    0    0    0    0    0
  5      0:1:1    0    0    0    0    0    4    0    0    0    0
  6      1:5:2    0    0    0    0    0    0    0    0    0    0
  7      0:1:1    0    0    0    0    1    0    0    0    0    0
  8      1:5:2    0    0    0    0    0    2    1    0    0    0
  9      0:1:1    0    0    0    0    0    2    4    0    0    0
 10      1:5:2    0    0    0    0    1    1    1    0    0    0
 11      0:1:1    0    0    0    0    0    0    0    0    0    0
  (... )
 32      1:5:1    0    0    0    1    0    2    0    0    0    0
 33      0:1:2    0    0    0    0    1    4    1    0    0    0
 34      1:5:1    0    0    0    0    2    0    0    0    0    0
 35      0:1:2    0    0    0    0    0    0    0    0    0    0
 36      1:5:1    0    0    0    1    1    0    0    0    0    0
 37      0:1:2    0    0    0    0    1    2    0    0    0    0
 38      1:5:1    0    0    0    0    1    1    2    0    0    0
 39      0:1:2    0    0    0    0    0    0    0    0    0    0
 40      1:5:1    0    0    0    0    2    4    5    3    0    0
 41      0:1:2    0    0    0    0    0    0    0    0    0    0
 42      1:5:1    0    0    0    1    0    1    0    0    0    0
 43      0:1:2    0    0    0    0    1    0    0    0    0    0
 44      1:5:1    0    0    0    0    2    3    2    0    0    0
 45      0:1:2    0    0    0    0    0    1    0    0    0    0
-----
total          0    0    0    9   30   48  25    5    0    0
Press the enter key to stop...
```

NOTES

- Each service time histogram column shows the number of accesses with service times between the time shown in the column's heading to the time shown in the heading of the column to its right (or infinity for the last column).
- Each I/O size histogram column shows the number of accesses with I/O size between the size shown in the column's heading to the size shown in the heading of the column to its right (or infinity for the last column).

- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.

COMMAND

histport

DESCRIPTION

The `histport` command displays a histogram of service times for ports within the system.

SYNTAX

`histport [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-both|-ctl|-data`

Specifies that both control and data transfers are displayed (`-both`), only control transfers are displayed (`-ctl`), or only data transfers are displayed (`-data`). If this option is not specified, only data transfers are displayed. If this option is used multiple times, only the last occurrence of the option on the command line is used.

`-nodes <nodelist>`

Specifies that the display is limited to specified nodes. The node list is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1). If the node list is not specified, all disks on all nodes are displayed.

`-slots <slotlist>`

Specifies that the display is limited to specified PCI slots. The slot list is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1). If the slot list is not specified, all disks on all nodes are displayed.

`-ports <portlist>`

Specifies that the display is limited to specified port slots. The port list is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1). If the port list is not specified, all disks on all nodes are displayed.

`-host|disk|-rcfc`

Specifies to display only host ports (target ports), only disk ports (initiator ports), or only Fibre Channel Remote Copy configured ports. If no option is specified, all ports are displayed.

`-metric both|time|size`

Selects which metric to display. Metrics can be one of the following:

- ◆ `both` - (Default) Displays both I/O time and I/O size histograms.
- ◆ `time` - Displays only the I/O time histogram.
- ◆ `size` - Displays only the I/O size histogram.

`-timecols <fcol> <lcol>`

For the I/O time histogram, show the columns from the first column `<fcol>` through last column `<lcol>`. The available columns range from 0 through 31.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 6).
- ◆ The last column (`<lcol>`) must be less than or equal to 31 (default value of 15).
- ◆ The first column includes all data accumulated for columns less than the first column and the last column includes accumulated data for all columns greater than the last column.

`-sizecols <fcol> <lcol>`

For the I/O size histogram, show the columns from the first column (`<fcol>`) through the last column (`<lcol>`). Available columns range from 0 through 15.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 3).
- ◆ The last column (`<lcol>`) must be less than or equal to 15 (default value of 11).

`-pct`

Shows the access count in each bucket as a percentage.



NOTE: For the following options, by default the histogram shows data from the start of the command.

`-prev|-begin`

Histogram displays data either from a previous sample (`-prev`) or from when the system was last started (`-begin`). If no option is specified, the histogram shows data from the beginning of the command's execution.

`-rw`

Specifies that the display includes separate read and write data. If not specified, the total is displayed.

`-d <secs>`

Specifies the interval in seconds that statistics are sampled from using an integer from 1 through 2147483. If no count is specified, the command defaults to 2 seconds.

`-iter <number>`

Specifies that the histogram is to stop after the indicated number of iterations using an integer from 1 through 2147483647.

`-sortcol <col> [,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

`-filt <fspec>`

Specifies that histograms below the threshold specified by the `<fspec>` argument are not displayed. The `<fspec>` argument is specified in the syntax of `<op>,<val_ms>,<count>`.

`<op>`

The `<op>` argument can be specified as one of the following:

- ◆ `r` - Specifies read statistics.
- ◆ `w` - Specifies write statistics.
- ◆ `t` - Specifies total statistics.
- ◆ `rw` - Specifies total read and write statistics.

`<val_ms>`

Specifies the threshold service time in milliseconds.

`<count>`

Specifies the minimum number of access above the threshold service time.

`-ni`

Specifies that histograms for only nonidle devices are displayed. This option is shorthand for the option `-filt t,0,0`.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays a histogram of service times for reads and writes to ports:

```
li% histport
12:35:24 10/20/04 -----Time (millisec)-----
Port      D/C 0.26 0.53 1.05 2.1 4.2 8.4 17 34 67 135
0:0:1     data   0   0   0   0   0   0   0   0   0   0
0:0:2     data 315 778   2   0   0   0   0   0   0   0
0:1:1     data   0   0   0   5  24  51  25  4   0   0
0:1:2     data   0   0   0   5  27  53  23  1   0   0
1:5:1     data   0   0   0   2  19  38  28 11   0   0
1:5:2     data   0   0   0   5  20  36  29  7   0   0
-----
total     data 315 778   2  17  90 178 105 23   0   0
Press the enter key to stop...
```

NOTES

- Each service time histogram column shows the number of accesses with service times between the time shown in the column's heading to the time shown in the heading of the column to its right (or infinity for the last column).
- Each I/O size histogram column shows the number of accesses with I/O size between the size shown in the column's heading to the size shown in the heading of the column to its right (or infinity for the last column).
- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.

COMMAND

histvlun

DESCRIPTION

The `histvlun` command displays VLUN service time histograms.

SYNTAX

`histvlun [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-domain <domain_name>... | <pattern>...`

Shows only VLUNs whose virtual volumes are in domains with names that match one or more of the specified domain names or patterns. Multiple domain names or patterns can be repeated using a comma-separated list.

`-host <hostname>... | <pattern>...`

Shows only VLUNs exported to the specified host(s) or pattern(s). Multiple host names or patterns can be repeated using a comma-separated list.

`-v <VV_name>... | <pattern>...`

Requests that only logical disks mapped to virtual volumes that match and of the specified names or patterns be displayed. Multiple volume names or patterns can be repeated using a comma-separated list.

`-l <LUN>... | <pattern>...`

Specifies that VLUNs with LUNs matching the specified LUN(s) or pattern(s) are displayed. Multiple LUNs or patterns can be repeated using a comma-separated list.

`-nodes <nodelist>`

Specifies that only exports from the specified nodes are to be displayed. The node list is specified as a series of integers separated by commas (1 , 2 , 3). The list can also consist of a single integer (1).

`-slots <slotlist>`

Specifies that only exports from the specified slots are to be displayed. The slot list is specified as a series of integers separated by commas (1 , 2 , 3). The list can also consist of a single integer (1).

`-ports <port_list>`

Specifies that only exports to the specified ports are to be displayed. The port list is specified as a series of integers separated by commas (1 , 2 , 3). The list can also consist of a single integer (1).

`-lw`

Lists the host's WWN or iSCSI name. This is especially useful when multiple WWNs or iSCSI names belonging to the same host are visible on the same port.

`-vvsum`

Specifies that sums for VLUNs of the same virtual volume are displayed.

`-hostsum`

Specifies that sums for VLUNs are grouped by host in the display. All VLUNs to unnamed hosts are added and displayed as a single set of data with a nameless host.

`-metric both|time|size`

Selects which metric to display. Metrics can be one of the following:

- ◆ `both` - (Default) Displays both I/O time and I/O size histograms.
- ◆ `time` - Displays only the I/O time histogram.
- ◆ `size` - Displays only the I/O size histogram.

`-timecols <fcol> <lcol>`

For the I/O time histogram, show the columns from the first column `<fcol>` through last column `<lcol>`. The available columns range from 0 through 31.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 6).
- ◆ The last column (`<lcol>`) must be less than or equal to 31 (default value of 15).
- ◆ The first column includes all data accumulated for columns less than the first column and the last column includes accumulated data for all columns greater than the last column.

`-sizecols <fcol> <lcol>`

For the I/O size histogram, show the columns from the first column (<fcol>) through the last column (<lcol>). Available columns range from 0 through 15.

- ◆ The first column (<fcol>) must be a value greater than or equal to 0, but less than the value of the last column (<lcol>) (default value of 3).
- ◆ The last column (<lcol>) must be less than or equal to 15 (default value of 11).

`-pct`

Shows the access count in each bucket as a percentage.



NOTE: For the following options, by default the histogram shows data from the start of the command.

`-prev|-begin`

Histogram displays data either from a previous sample (`-prev`) or from when the system was last started (`-begin`). If no option is specified, the histogram shows data from the beginning of the command's execution.

`-rw`

Specifies that the display includes separate read and write data. If not specified, the total is displayed.

`-d <secs>`

Specifies the interval in seconds that statistics are sampled from using an integer from 1 through 2147483. If no count is specified, the command defaults to 2 seconds.

`-iter <number>`

Specifies that the histogram is to stop after the indicated number of iterations using an integer from 1 through 2147483647.

`-sortcol <col> [,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

`-filt <fspec>`

Specifies that histograms below the threshold specified by the `<fspec>` argument are not displayed. The `<fspec>` argument is specified in the syntax of `<op>,<val_ms>,<count>`.

`<op>`

The `<op>` argument can be specified as one of the following:

- ◆ `r` - Specifies read statistics.
- ◆ `w` - Specifies write statistics.
- ◆ `t` - Specifies total statistics.
- ◆ `rw` - Specifies total read and write statistics.

`<val_ms>`

Specifies the threshold service time in milliseconds.

`<count>`

Specifies the minimum number of access above the threshold service time.

`-ni`

Specifies that histograms for only nonidle devices are displayed. This option is shorthand for the option `-filt t,0,0`.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays two iterations of a histogram of service times for all VLUNs:

```
cli% histvlun -iter 2
```

12:48:50 10/20/04 -----Time (millisec)-----													
Lun	VVname	Host	Port	0.26	0.53	1.05	2.1	4.2	8.4	17	34	67	135
0	tpvv	queasy09	0:0:2	0	1	20	0	0	0	0	0	0	0

total				0	1	20	0	0	0	0	0	0	0

12:48:52 10/20/04 -----Time (millisec)-----													
Lun	VVname	Host	Port	0.26	0.53	1.05	2.1	4.2	8.4	17	34	67	135
0	tpvv	queasy09	0:0:2	0	1	30	0	0	0	0	0	0	0

total				0	1	30	0	0	0	0	0	0	0

NOTES

- Each service time histogram column shows the number of accesses with service times between the time shown in the column's heading to the time shown in the heading of the column to its right (or infinity for the last column).
- Each I/O size histogram column shows the number of accesses with I/O size between the size shown in the column's heading to the size shown in the heading of the column to its right (or infinity for the last column).
- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.

COMMAND

histvv

DESCRIPTION

The `histvv` command displays virtual volume service time histograms in a timed loop.

SYNTAX

`histvv [options <arg>] [<VV_name>|<pattern>]...`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-domain <domainname>...|<pattern>...`

Shows only the virtual volumes that are in domains with names that match the specified domain name(s) or pattern(s).

`-metric both|time|size`

Selects which metric to display. Metrics can be one of the following:

- ◆ `both` - (Default) Displays both I/O time and I/O size histograms.
- ◆ `time` - Displays only the I/O time histogram.
- ◆ `size` - Displays only the I/O size histogram.

`-timecols <fcol> <lcol>`

For the I/O time histogram, show the columns from the first column `<fcol>` through last column `<lcol>`. The available columns range from 0 through 31.

- ◆ The first column (`<fcol>`) must be a value greater than or equal to 0, but less than the value of the last column (`<lcol>`) (default value of 6).
- ◆ The last column (`<lcol>`) must be less than or equal to 31 (default value of 15).
- ◆ The first column includes all data accumulated for columns less than the first column and the last column includes accumulated data for all columns greater than the last column.

`-sizecols <fcol> <lcol>`

For the I/O size histogram, show the columns from the first column (<fcol>) through the last column (<lcol>). Available columns range from 0 through 15.

- ◆ The first column (<fcol>) must be a value greater than or equal to 0, but less than the value of the last column (<lcol>) (default value of 3).
- ◆ The last column (<lcol>) must be less than or equal to 15 (default value of 11).

`-pct`

Shows the access count in each bucket as a percentage.



NOTE: For the following options, by default the histogram shows data from the start of the command.

`-prev`

Histogram displays data from a previous sample.

`-rw`

Specifies that the display includes separate read and write data. If not specified, the total is displayed.

`-d <secs>`

Specifies the interval in seconds that statistics are sampled from using an integer from 1 through 2147483. If no count is specified, the command defaults to 2 seconds.

`-iter <number>`

Specifies that the histogram is to stop after the indicated number of iterations using an integer from 1 through 2147483647.

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on column number <col>. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting <dir> as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

`-filt <fspec>`

Specifies that histograms below the threshold specified by the `<fspec>` argument are not displayed. The `<fspec>` argument is specified in the syntax of `<op>,<val_ms>,<count>`.

`<op>`

The `<op>` argument can be specified as one of the following:

- ◆ `r` - Specifies read statistics.
- ◆ `w` - Specifies write statistics.
- ◆ `t` - Specifies total statistics.
- ◆ `rw` - Specifies total read and write statistics.

`<val_ms>`

Specifies the threshold service time in milliseconds.

`<count>`

Specifies the minimum number of access above the threshold service time.

`-ni`

Specifies that histograms for only nonidle devices are displayed. This option is shorthand for the option `-filt t,0,0`.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays two iterations of a histogram of service times for all virtual volumes:

```
%cli histvv -iter 2
12:53:03 10/20/04 -----Time (millisec)-----
      VVname 0.26 0.53 1.05 2.1 4.2 8.4 17 34 67 135
      admin   0   0   0   0   0   0   0   0   0   0
      tpvv    29   0   0   0   0   0   0   0   0   0
-----
      total   29   0   0   0   0   0   0   0   0   0

12:53:05 10/20/04 -----Time (millisec)-----
      VVname 0.26 0.53 1.05 2.1 4.2 8.4 17 34 67 135
      admin   0   0   0   0   0   0   0   0   0   0
      tpvv   105   0   0   0   0   0   0   0   0   0
-----
      total  105   0   0   0   0   0   0   0   0   0
```

NOTES

- Each service time histogram column shows the number of accesses with service times between the time shown in the column's heading to the time shown in the heading of the column to its right (or infinity for the last column).
- Each I/O size histogram column shows the number of accesses with I/O size between the size shown in the column's heading to the size shown in the heading of the column to its right (or infinity for the last column).
- If a <VV_name> or <pattern> are specified, then virtual volumes with names that match any of the patterns are listed, otherwise all virtual volumes are listed. These patterns are glob-style patterns (see help on `sub`, `globpat`).
- Virtual volumes may be accessed externally by hosts and internally by the prefetcher. Virtual volume data measured by this command include accesses by the prefetcher.
- In addition to external accesses by hosts, virtual volumes can be read internally by the system read-ahead prefetcher. The `histvv` data includes read-ahead accesses from the prefetcher that can cause the read data to appear more than seen by the hosts. Use the `histv lun -vvsum` command to see data for only accesses from the host.

16

Locate Commands

In this chapter

`locateage`

16.2

`locatesys`

16.4

COMMAND

`locatecage`

DESCRIPTION

The `locatecage` command allows system administrators to locate a drive cage, drive magazine, or port in the system using the devices' blinking LEDs.

SYNTAX

The syntax for the `locatecage` command can be one of the following:

- To locate an entire drive cage:

```
locatecage [option <arg>] <cage_name>
```

- To locate a drive magazine:

```
locatecage [option <arg>] <cage_name> <mag>
```

- To locate a port:

```
locatecage [option <arg>] <cage_name> <port_name>
```

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-t <sec>`

Specifies the number of seconds, from 0 through 255 seconds, to blink the LED. If the argument is not specified, the option defaults to 60 seconds.

SPECIFIERS

`<cage_name>`

Specifies the drive cage name as shown in the `Name` column of `showcage` command output.

<port_name>

Indicates the port specifiers. Accepted values are A0|B0|A1|B1. If a port is specified, the port LED will oscillate between green and off. The <port_name> specifier is not supported for DC3 drive cages.

<mag>

Indicates the drive magazine by number.

- ◆ For DC2 and DC4 drive cages, accepted values are 0 through 9.
- ◆ For DC3 drive cages, accepted values are 0 through 15.

RESTRICTIONS

The <port_name> specifier is not supported for DC3 drive cages.

EXAMPLES

The following example causes the Fibre Channel LEDs on the drive cage `cage0` to blink for 20 seconds:

```
cli% locatecage -t 20 cage0
```

NOTES

- Issue the `showcage` command for a list of cage names.
- If no port or magazine is specified, all LEDs in the cage are set as amber or oscillate (depending on the cage type).
- If the port is specified, it turns green (not available in all cage types).

COMMAND

locatesys

DESCRIPTION

The `locatesys` command helps locate a storage system by blinking the node status LEDs on all nodes of a storage system alternating between amber and green. By default, the LEDs in all connected cages are also set as amber or oscillating (depending on the cage).

SYNTAX

```
locatesys [options <arg>]
```

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-t <seconds>`

Specifies the number of seconds to blink the LEDs. The default is 60 seconds; the maximum is 255 seconds.

`-nodes <node_list>`

Specifies a comma-separated list of nodes on which to blink LEDs. The default is all nodes.

`-nocage`

Specifies that LEDs on the drive cages should not blink. The default is to blink LEDs for all cages in the system.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

In the following example, an InServ Storage Server is identified by blinking the LEDs on all drive cages in the system for 90 seconds.

```
cli% locatesys -t 90
```

NOTES

None.

17

Move Commands

In this chapter

<code>movech</code>	17.2
<code>movechtospare</code>	17.5
<code>movepdtospare</code>	17.7
<code>moverelocpd</code>	17.9
<code>movetodomain</code>	17.12

COMMAND

`movech`

DESCRIPTION

The `movech` command moves a list of chunklets from one physical disk to another.

SYNTAX

`movech [options] <fd:fp-td:tp>...`

AUTHORITY

Super, Service, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-nowait`

Specifies that the command returns before the operation is completed. If not specified, the command returns only after the move is completed.

`-dr`

Use this option when you do not want to do the actual move.

`-devtype`

Permits the moves to happen to different device types.

`-perm`

Specifies that chunklets are permanently moved and the chunklets' original locations are not remembered. If the `-perm` option is not specified, the chunklets' original locations are retained, thereby allowing the chunklets to be returned to their original locations through the `moverelocpd` and `servicemag resume` commands.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

-ovrd

Permits the moves to happen to a destination even when there will be a loss of quality because of the move. This option is only necessary when the target of the move is not specified and the -perm flag is used.

SPECIFIERS

<fd:fp>[<-td:tp>]...

Specifies that the chunklet located at the specified disk (<fd>) and the chunklet's position on that disk (<fp>) be moved to either the specified destination disk (<td>) and chunklet position (<tp>), or a location determined by the system if a destination (<-td:tp>) is not specified. This specifier must be used at least once on the command line. Repeated use of this specifier allows multiple chunklets to be moved.

RESTRICTIONS

None.

EXAMPLES

The following example displays chunklets on position 4 from physical disk 21 moved to position 1 on physical disk 23:

cli% movech 21:4-23:1						
Move	Destination	qset	grow	qcon	glocal	glost
21:4-23:1	ch was moved	cage	0	2	true	false

The columns in the previous example are identified as follows:

- qset. The quality of the set after the chunklet move, in terms of the availability characteristics of the logical disk.
- grow. The quality of the row after the chunklet move, in terms of the number of other chunklets from the same physical disk.
- qcon. The quality of the connectivity to the destination chunklet.
- glocal. Indicates if the chunklet is on a physical disk that is connected to the same two nodes as the other chunklets in the set.
 - ◆ true. Indicates that the chunklet is connected to the same nodes.
 - ◆ false. Indicates that the chunklet is not connected to the same nodes.
- glost. Indicates if any quality was lost by the move.

- ◆ `true`. Indicates quality was lost.
- ◆ `false`. Indicates quality was not lost.

NOTES

- Chunklets moved through the `movech` command are only moved temporarily. Issuing either the `moverelocpd` or `servicemag resume` command can move the chunklet back to its original position.
- Specifying the `-dr` option can be used to see if the specified moves succeed and what the results (quality) of the moves are.

COMMAND

`movechtospare`

DESCRIPTION

The `movechtospare` command moves data from specified physical disks to a temporary location selected by the system.

SYNTAX

`movechtospare [options] <fd:fp>`

AUTHORITY

Super, Service, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-nowait`

Specifies that the command returns before the operation is completed. If not specified, the command returns only after the move is completed.

`-dr`

Use this option when you do not want to do the actual move.

`-devtype`

Permits the moves to happen to different device types.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<fd:fp>`

Indicates that the move takes place from the specified physical disk (`<fd>`) and chunklet position (`<fp>`).

RESTRICTIONS

None.

EXAMPLES

In the following example, chunklet 60 from physical disk 0 is moved to spare:

```
cli% movechtospare 0:60
select q=quit y=yes n=no: y
      Move      Status qset qrow qcon qlocal qlost
0:60-10:45 ch was moved mag    0    2  true false
```

In the example above:

- **qset**. The quality of the set after the chunklet is moved, in terms of the availability characteristics of the logical disk.
- **qrow**. The quality of the row after the chunklet is moved, in terms of the number of other chunklets from the same physical disk.
- **qcon**. The quality of the connectivity to the destination chunklet.
- **qlocal**. Indicates whether the chunklet is on a physical disk that is connected to the same two nodes as the other chunklets in the set. Values can be:
 - ◆ **true**. The chunklet is connected to the same nodes.
 - ◆ **false**. The chunklet is not connected to the same nodes.
- **qlost**. Indicates whether or not any quality was lost by the move. Values can be:
 - ◆ **true**. Quality was lost.
 - ◆ **false**. Quality was not lost.

NOTES

None.

COMMAND

`movepdtospare`

DESCRIPTION

The `movepdtospare` command moves data from specified physical disks to a temporary location selected by the system.

SYNTAX

`movepdtospare [options] <PD_ID>...`

AUTHORITY

Super, Service, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-nowait`

Specifies that the command returns before the operation is completed. If not specified, the command returns only after the move is completed.

`-dr`

Use this option when you do not want to do the actual move.

`-devtype`

Permits the moves to happen to different device types.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<PD_ID>...`

Specifies the physical disk ID. This specifier can be repeated to move multiple physical disks.

RESTRICTIONS

None.

EXAMPLES

The following example displays a dry run of moving the data on physical disk 0 to free or spare space:

```
cli% movepdtospare -dr 0
```

Move	Status	qset	grow	qcon	glocal	glost
0:0-2:3	source and destination are valid	cage	1	2	true	false
0:1-2:4	source and destination are valid	cage	2	2	true	false
0:2-2:6	source and destination are valid	cage	1	2	true	false
0:3-10:5	source and destination are valid	mag	0	2	true	false
0:11-11:5	source and destination are valid	disk	8	2	true	false
0:20-9:5	source and destination are valid	disk	9	2	true	false

- **qset.** The quality of the set after the chunklet move, in terms of the availability characteristics of the logical disk.
- **grow.** The quality of the row after the chunklet move, in terms of the number of other chunklets from the same physical disk.
- **qcon.** The quality of the connectivity to the destination chunklet.
- **glocal.** Indicates if the chunklet is on a physical disk that is connected to the same two nodes as the other chunklets in the set.
 - ◆ **true.** Indicates that the chunklet is connected to the same nodes.
 - ◆ **false.** Indicates that the chunklet is not connected to the same nodes.
- **glost.** Indicates if any quality was lost by the move.
 - ◆ **true.** Indicates quality was lost.
 - ◆ **false.** Indicates quality was not lost.

NOTES

- The destination physical disks do not need to be specified as the system automatically determines the spare locations.
- Specifying the **-dr** option can be used to see if the specified moves succeeds and the results (quality) of the moves.

COMMAND

moverelocpd

DESCRIPTION

The `moverelocpd` command moves chunklets that were on a physical disk to the target of relocation as specified by you.

SYNTAX

`moverelocpd [options] <fd-td>...`

AUTHORITY

Super, Service, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-nowait`

Specifies that the command returns before the operation is completed. If not specified, the command returns only after the move is completed.

`-dr`

Use this option when you do not want to do the actual move.

`-partial`

Move as many chunklets as possible.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<fd-td>...`

Specifies that the chunklets on a specified disk (`<fd>`), are moved to the specified destination disk (`<td>`). This specifier must be used at least once on the command line. Repeated use of this specifier allows multiple chunklets to be moved.

RESTRICTIONS

None.

EXAMPLES

The following example moves chunklets that were on physical disk 8 that were relocated to another position, back to physical disk 8:

```
cli% moverelocpd 8-8
Are you sure you want to move the chunklets ?
select q=quit y=yes n=no: y
Move          Status          qset  qrow    qcon  qlocal  qlost
1:63-8:0      ch was moved      mag    0        2    true   false
1:64-8:24     ch was moved      mag    0        2    true   false
1:65-8:25     ch was moved      mag    0        2    true   false
1:66-8:26     ch was moved      mag    0        2    true   false
3:63-8:6      ch was moved      mag    0        2    true   false
3:64-8:11     ch was moved      mag    0        2    true   false
```

The columns in the previous example are identified as follows:

- **qset**. The quality of the set after the chunklet move, in terms of the availability characteristics of the logical disk.
- **qrow**. The quality of the row after the chunklet move, in terms of the number of other chunklets from the same physical disk.
- **qcon**. The quality of the connectivity to the destination chunklet.
- **qlocal**. Indicates if the chunklet is on a physical disk that is connected to the same two nodes as the other chunklets in the set.
 - ◆ **true**. Indicates that the chunklet is connected to the same nodes.
 - ◆ **false**. Indicates that the chunklet is not connected to the same nodes.
- **qlost**. Indicates if any quality was lost by the move.
 - ◆ **true**. Indicates quality was lost.
 - ◆ **false**. Indicates quality was not lost.

NOTES

- Chunklets moved from physical disk *fd* are treated as if they originated on disk *td*. Disk *td* can be the same as disk *fd*.

- Specifying the `-dr` option can be used to see if the specified moves succeeds and what the results (quality) of the moves are.
- If the `-partial` option is used, the command relocates as many chunklets as possible and prints messages for the chunklets it could not move.

COMMAND

`movetodomain`

DESCRIPTION

The `movetodomain` command moves objects from one domain to another.

SYNTAX

`movetodomain [options] <object_name> <domain_name>`

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-vv`

Specifies that the object is a virtual volume.

`-cpg`

Specifies that the object is a CPG.

`-host`

Specifies that the object is a host.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<object_name>`

Specifies the name object to be moved.

`<domain_name>`

Specifies the domain to which the specified object is moved.

RESTRICTIONS

None.

EXAMPLE

The following example displays the movement of virtual volume `vv1` to domain `SampleDomain`:

```
cli% movetodomain -vv vv1 SampleDomain
The following volumes will have their domain modified:
vv1
The following hosts will have their domain modified:
thehost
The following CPGs will have their domain modified:
SampleCPG
14 associated LDs will also have their domain changed.
Do you want to proceed with moving the above to domain SampleDomain?
select y=yes n=no: y
```

NOTES

- The `movetodomain` command moves all objects that are directly or indirectly related to the specified object into the specified domain. Possible relationships include, but are not limited to, VLUNs between hosts and virtual volumes, virtual volumes using a CPG for snapshot space, and two virtual volumes sharing the same logical disc. If the `-f` option is not used, a list of all objects that will be modified is shown before the confirmation prompt.
- To remove the domain from an object, specify the `-unset` option for the `<domain_name>` specifier.

18

Promote Commands

In this chapter

`promotesv`

18.2

`promotevvcopy`

18.4

COMMAND

`promotesv`

DESCRIPTION

The `promotesv` command copies the differences of a snapshot back to its base volume or any RW parent in the same VV family tree, allowing you to revert the base volume to an earlier point in time.

SYNTAX

`promotesv [options] <virtual_copy_name>`

AUTHORITY

Super, Edit

OPTIONS

`-target`

Copy the differences of the virtual copy to the specified RW parent in the same VV family tree. The default is to copy the differences to the base volume.

- ◆ This option cannot be used with the `-halt` option.
- ◆ The virtual copy and the target of the promote must not be exported.
- ◆ Only one `promotesv` operation is allowed at a time within a VV family tree.

`-rcp`

Allows the promote operation to proceed even if the base volume is currently in a Remote Copy volume group, if that group has not been started. If the group has been started, this command fails. This option cannot be used in conjunction with the `-halt` option.

`-halt`

Cancel an ongoing snapshot promotion. Marks the base volume with the `copy failed` status that can be rectified using the `promotevvcopy` (see [promotevvcopy](#) on page 18.4) command or by issuing a new instance of the `promotesv` command. This option cannot be used in conjunction with the `-rcp` option.

SPECIFIERS

`<virtual_copy_name>`

Specifies the name of the virtual copy volume to be promoted, using up to 31 characters.

RESTRICTIONS

- The virtual copy and its base volume must not be exported.
- If working with a Remote Copy volume group and that group has been started, the `promotesv -rcp` command will fail.

EXAMPLES

The following example promotes the differences from virtual volume 11 and its base volume 10:

```
cli% promotesv 11
```

NOTES

- Issue the `showvv` command to verify that differences in the snapshot volume are promoted to its base volume.
- Issue the `showvv -d` command to display the number of remaining blocks to be copied.

COMMAND

`promotevvcopy`

DESCRIPTION

The `promotevvcopy` command promotes a physical copy back to a regular base volume.

SYNTAX

`promotevvcopy <physical_copy_name>`

AUTHORITY

Super, Edit

OPTIONS

None.

SPECIFIERS

`<physical_copy_name>`

Specifies the name of the physical copy to be promoted, using up to 31 characters.

RESTRICTIONS

The physical copy must have completed the copy from the base volume.

EXAMPLES

The following example promotes virtual volume 85 to a base volume:

```
cli% promotevvcopy 85
```

NOTES

- The saved snapshot of the parent of `<physical_copy_name>` is also removed.
- The `promotevvcopy` command can also be used to clean up a failed physical copy.
- Issue the `showvv` command to verify that promoted volume is a base volume.
- After a physical copy has been promoted, the association between it and its parent volume is broken; the physical copy and base volume can no longer resync.

19

Remove Commands

In this chapter

<code>removealert</code>	19.3
<code>removecpg</code>	19.5
<code>removedomain</code>	19.7
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COMMAND

`removealert`

DESCRIPTION

The `removealert` command removes one or more alerts from the system.



CAUTION: Use care when removing alerts. Alerts that have not been fixed or acknowledged should NOT be removed.

SYNTAX

`removealert [option] -a | <alert_ID>...`

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-a`

Specifies all alerts from the system and prompts removal for each alert. If this option is not used, then the `<alert_ID>` specifier must be used.

`-f`

Specifies that the command is forced. If this option is not used and there are alerts in the new state, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<alert_ID>...`

Indicates a specific alert be removed from the system. This specifier can be repeated to remove multiple alerts. If this specifier is not used, the `-a` option must be used.

RESTRICTIONS

None.

EXAMPLES

The following example displays all alerts from the system with the option to remove individual alerts:

```
cli% removealert -a

Id 120 - New
  Occurred 4 times, last at Tue May 03 22:45:47 PDT 2005
  Message code: 196609
  Tue May 03 22:23:17 PDT 2005
  Node: 0 Severity: Minor
  Firmware coredump event
  Firmware COREDUMP: recovered file /var/core/hba/fwcore.n00.s02.p01.20050503.224547

Alert 120 is marked as "New".
Are you sure you want to remove it?
select q=quit y=yes n=no: y

Id 131 - New
  Message code: 1114115
  Thu May 05 00:11:25 PDT 2005
  Node: 0 Severity: Minor
  Too many events are being logged
  Too many events are being generated. 2 event files were rolled over in less
  than 1800 seconds. Current event files could not be archived because too many
  have been archived already.

Alert 131 is marked as "New".
Are you sure you want to remove it?
select q=quit y=yes n=no: y

Id 133 - New
  Message code: 1966081
  Thu May 05 00:25:27 PDT 2005
  Node: 0 Severity: Degraded
  Cage log event
  cage2-A, loop 1:0:2, cage time Thu May 5 00:25:29 2005. Fan at position 1 is
  running at high speed. Internal parameters: 0x0003 0x0109 01 01 00 00 00 00 00
  00 00 00 00 00.

Alert 133 is marked as "New".
Are you sure you want to remove it?
select q=quit y=yes n=no:
```

NOTES

None.

COMMAND

`removecpg`

DESCRIPTION

The `removecpg` command removes common provisioning groups (CPGs) from the system or removes specific logical disks from common provisioning groups.

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

SYNTAX

```
removecpg [options <arg>] {<CPG_name>|<pattern>}...
```

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-keepld`

After the CPG has been removed, do not remove the underlying logical disks that belonged to the CPG. Without this option, unless the `-sa` or `-sd` options are specified, the logical disks are removed.

`-ld`

Specifies that after the CPG is removed, all logical disks that were part of the CPG are also removed. This is the default behavior.

`-sa <LD_name>`

Specifies that the logical disk, as identified with the `<LD_name>` argument, used for snapshot administration space allocation is removed. The `<LD_name>` argument can be repeated to specify multiple logical disks. This option does not remove the CPG.

`-sd <LD_name>`

Specifies that the logical disk, as identified with the `<LD_name>` argument, used for snapshot data space allocation is removed. The `<LD_name>` argument can be repeated to specify multiple logical disks. This option does not remove the CPG.

`-pat`

The specified patterns are treated as glob-style patterns and that all virtual volumes matching the specified pattern are removed. By default, confirmation is required to proceed with the command unless the `-f` option is specified. This option must be used if the pattern specifier is used.

SPECIFIERS

`<CPG_name>`

Specifies the name of the common provisioning group that is either being removed or losing logical disks.

`<pattern>`

Specifies a glob-style pattern. This specifier can be repeated to remove multiple virtual volumes. If this specifier is not used, the `<CPG_name>` specifier must be used. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

The `removecpg` command fails if any of the logical disks, or the entire common provisioning group, is in use by a thinly provisioned virtual volume.

EXAMPLES

The following example displays the removal of common provisioning group `cpg1`:

```
cli% removecpg cpg1
```

NOTES

- By default, this command deletes any unused logical disks. This is equivalent to using the `-ld` option. The `-ld` option still exists for backward compatibility. A new `-keepld` option has been added to change the default behavior and keep unused logical disks.
- If neither the `-sa` or `-sd` options are specified, the entire common provisioning group is removed, including all logical disks.
- The operation fails if any of the logical disks are in use by a TPVV.

COMMAND

removedomain

DESCRIPTION

The `removedomain` command removes an existing domain from the system.

SYNTAX

`removedomain [option] <domain_name>`

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

When using this option, the command does not ask for confirmation before removing the domain.

SPECIFIERS

`<domain_name>`

Specifies the domain that is removed.

RESTRICTIONS

None.

EXAMPLES

The following example removes the domain named `sample_domain` from the system:

```
cli% removedomain -f sample_domain
```

NOTES

None.

COMMAND`removeeventlog`**DESCRIPTION**

The `removeeventlog` command removes all debug event logs from the system.

SYNTAX`removeeventlog [option]`**AUTHORITY**

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example removes all event logs from the system:

```
cli% removeeventlog -f
```

NOTES

- Without the `-f` flag, the command prompts for confirmation.
- Verify the removal of event logs by issuing the `showeventlog` command. See [showeventlog](#) on page 22.35 for more information.

COMMAND

removehost

DESCRIPTION

The `removehost` command removes a system host or paths to a host. If one or more paths are specified, the command removes only those paths, otherwise the entire host definition is removed.

SYNTAX

```
removehost [options] <hostname> [<WWN>...|<ISCSI_name>...]
```

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-rvl`

Remove WWN(s) or iSCSI name(s) even if there are VLUNs exported to the host. This option cannot be used if you are removing the entire host definition.

`-iscsi`

Specifies that the paths are iSCSI names. If this option is not specified, the paths are WWNs.

SPECIFIERS

`<hostname>`

Specifies the host name, using up to 31 characters.

`<WWN>`

Only the specified WWN(s) path to the specified host is removed. This specifier is not required on the command line. If a WWN is not specified, the entire host definition is removed.

`<ISCSI_name>`

Specifies the host iSCSI name to be removed from the specified host. If no iSCSI name is specified, the entire host definition is removed.

RESTRICTIONS

A host that has one or more VLUNs exported on it cannot be removed.

EXAMPLES

The following example removes host `test01`:

```
cli% removehost test01
```

NOTES

- Removing an entire host definition by issuing the `removehost <hostname>` command is not equivalent to removing all of the paths associated with a host. The latter leaves a host definition with no paths associated to it, whereas the former removes the entire host definition.
- Verify the removal of hosts by issuing the `showhost` command.

COMMAND

removeld

DESCRIPTION

The `removeld` command removes a specified logical disk from the system service group.

SYNTAX

`removeld [options] {<LD_name>|<pattern>}...`

AUTHORITY

Edit

OPTIONS

`-pat`

Specified patterns are treated as glob-style patterns and all logical disks matching the specified pattern are removed. By default, confirmation is required to proceed with the command unless the `-f` option is specified. This option must be used if the `pattern` specifier is used.

`-dr`

Specifies that the operation is a dry run and no logical disks are removed.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-rmsys`

Specifies that system resource logical disks such as logging logical disks and preserved data logical disks are removed. See the *InForm OS Concepts Guide* for information on logging logical disks and preserved data logical disks.



CAUTION: System resource logical disks are required for correct operation of the InServ storage system. Removal of system resource logical disks should be performed by qualified service personnel. Incorrect use of the `-rmsys` option can result in data loss.

SPECIFIERS

<LD_name>

Specifies the logical disk name, using up to 31 characters. Multiple logical disks can be specified.

<pattern>

Specifies a glob-style pattern. Multiple logical disks can be specified. If this specifier is not used, the <LD_name> specifier must be used. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

- If the logical disk is mapped to a virtual volume, the logical disk is not removed.
- Issuing the `removeld` command with the `-pat` option specified returns a request for confirmation to remove logical disks, unless the `-f` option is specified.
- Do not issue the `removeld` command while a `movech`, `movech2spare`, `movepd2spare`, or `moverelocpd` operation is being executed. Issue the `showldch` command to view operations currently running on the system. See [showldch](#) on page 22.55 for additional information.

EXAMPLES

The following example removes logical disk `test0`:

```
cli% removeld -f test0
```

NOTES

Verify the removal of logical disks by issuing the `showld` command. See [showld](#) on page 22.49 for additional information.

COMMAND

removercopygroup

DESCRIPTION

The `removercopygroup` command removes a Remote Copy volume group.

SYNTAX

`removercopygroup <group_name>`

AUTHORITY

Edit

OPTIONS

None.

SPECIFIERS

`<group_name>`

The name of the group to be removed.

RESTRICTIONS

- Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.
- This command is not allowed if Remote Copy is in progress; the system generates an error. The group must be stopped using the `stoprcopygroup` command.

EXAMPLES

The following example removes `Group1` from the local system:

```
cli% removercopygroup Group1
```

NOTES

- If the `mirror_config` option policy is set for this group's target and the group is a primary group, then this command is mirrored to the target and the corresponding group is also removed. If the policy is set and the group is a secondary group, then this command fails.

- The `removercopygroup` command removes all the associations configured in the specified group and removes the group name and any Remote Copy synchronization snapshots affiliated with volumes in the group.

COMMAND

removercopytarget

DESCRIPTION

The `removercopytarget` command removes target designation from a Remote Copy system and removes all links affiliated with that target.

SYNTAX

`removercopytarget <target_name>`

AUTHORITY

Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

`<target_name>`

The target name for the target definition to be removed.

RESTRICTIONS

- Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.
- A target definition cannot be deleted if it is being used by any group.

EXAMPLES

The following example removes target `InServ1_in` from a Remote Copy system:

```
cli% removercopytarget InServ1_in
```

NOTES

None.

COMMAND

`removesnmpmgr`

DESCRIPTION

The `removesnmpmgr` command removes preregistered SNMP software frameworks (managers) for receiving alerts (traps).

SYNTAX

`removesnmpmgr [option <arg>] <IP_address>`

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-p <port_number>`

Specifies the port number where the manager receives traps. If not specified, the port number defaults to 162.

SPECIFIERS

`<IP_address>`

Specifies the IP address of the host where the manager runs.

RESTRICTIONS

None.

EXAMPLES

The following example displays the removal of a host with the IP address 123.45.67.89 from the list of registered managers:

```
cli% removesnmpmgr 123.45.67.89
```

EXIT STATUS

The following codes are returned indicating success or failure:

- 0 indicates that the trap manager host was removed and the command was successful.
- 1 indicates that the command failed.
- 2 indicates that the host is not on the list of registered hosts.

NOTES

- SNMP managers are registered by issuing the `addsnmpmgr` command. See [addsnmpmgr](#) on page 4.2 for additional information.
- Verify the removal of SNMP managers by issuing the `showsnmpmgr` command. See [showsnmpmgr](#) on page 22.130 for more information.

COMMAND

`removesnmppw`

DESCRIPTION

The `removesnmppw` command allows a user to remove SNMP access community string passwords.

SYNTAX

`removesnmppw [options]`

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-rw` | `-r` | `-w`

Removes the read/write (`-rw`), read-only (`-r`), or write-only (`-w`) password. If not specified, the read/write community string password is removed.

`-f`

Forces the operation so that the command does not require confirmation before proceeding.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the removal of the read/write SNMP access password:

```
cli% removesnmppw -f
```


EXIT STATUS

The following codes are returned indicating success or failure:

- 0 indicates that the password was removed and the command was successful.
- 1 indicates that the command failed.
- 2 indicates that a password does not exist.

NOTES

- After a password has been removed, the system manager can no longer use that password to send requests to the SNMP agent.
- Verify the removal of SNMP passwords by issuing the `showsnmppw` command. See [showsnmppw](#) on page 22.128 for additional information.

COMMAND

removespare

DESCRIPTION

The `removespare` command removes chunklets from the spare chunklet list.

SYNTAX

`removespare [options] <chunklet_specifier>...`

AUTHORITY

Edit, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

Specifies that the operation is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-p`

Specifies that partial completion of the command is acceptable. Chunklets specified that are not on the current service group spare list are ignored.

SPECIFIERS

`<chunklet_specifier>...`

The chunklet specifier can be issued in the following formats:

`<PD_ID:chunklet_num>...`

Specifies the identification of the physical disk (`PD_ID`) and the position number of the chunklet on the disk (`chunklet_num`). This specifier can be repeated.

`<PD_ID>:a...`

Specifies the identification of the physical disk (`PD_ID`) and all (a) chunklets on the disk. This specifier can be repeated.

`a:<chunklet_num>...`

Specifies the chunklet number on all physical disks. This specifier can be repeated.

`-pos <cage:mag:disk:chunklet_num>`

Specifies the position of a specific chunklet identified by its position in a drive cage, drive magazine, physical disk, and chunklet number. For example `-pos 1:0.2:3:121`, where 1 is the drive cage, 0.2 is the drive magazine, 3 is the physical disk, and 121 is the chunklet number.

`-pos <cage:mag:disk:a>`

Specifies that all chunklets on a physical disk, identified by drive cage number, drive magazine number, and disk number, are marked to be removed.

RESTRICTIONS

None.

EXAMPLES

The following example removes a spare chunklet from position 3 on physical disk 1:

```
cli% removespare 1:3
```

NOTES

Verify the removal of spare chunklets by issuing the `showspare` command. See [showspare](#) on page 22.136 for more information.

COMMAND

removesshkey

DESCRIPTION

The `removesshkey` command removes your SSH public key to disable key authentication.

SYNTAX

`removesshkey [<user_name>...]`

AUTHORITY

Service

OPTIONS

None.

SPECIFIERS

`<user_name>...`

Specifies the name of the user whose SSH key is removed. Multiple users can be specified. If not specified, the SSH key for the current user is removed.

RESTRICTIONS

None.

EXAMPLES

The following example displays the removal of your SSH public key:

```
cli% removesshkey
```

NOTES

- After removing the user's SSH public key on the InServ Storage Server, the user cannot use the SSH key authentication to log in. The user must use name and password to log in.
- The `showuser -k` command can be used to display users that have SSH keys.

COMMAND

removetask

DESCRIPTION

The `removetask` command removes information about one or more completed tasks and their details.

SYNTAX

The syntax of the `removetask` command can be one of the following:

- `removetask [options <arg>] -a`
- `removetask [options <arg>] -t <hours>`
- `removetask [options <arg>] <task_ID>...`

AUTHORITY

Edit

OPTIONS

`-a`

Removes all tasks including details.

`-d`

Remove task details only.

`-f`

Specifies that the command is to be forced. You are not prompted for confirmation before the task is removed.

`-t <hours>`

Removes tasks that have not been active within the past `<hours>`, where `<hours>` is an integer from 1 through 240.

SPECIFIERS

`<task_ID>...`

Allows you to specify tasks to be removed using their task IDs.

RESTRICTIONS

None.

EXAMPLES

The following example shows how to remove a task based on the task ID.

```
cli% removetask 2
Remove the following tasks?
2
select q=quit y=yes n=no: y
```

The following example shows how to remove all tasks, including details.

```
cli% removetask -a
Remove all tasks?
select q=quit y=yes n=no: y
```

NOTES

- See the *InForm OS Concepts Guide* and *InForm OS CLI Administrator's Manual* for additional information and examples regarding task management and task management commands.
- With this command, the specified task ID and any information associated with it are removed from the system. However, task IDs are not recycled, so the next task started on the system uses the next whole integer that has not already been used. Task IDs roll over at 99999. The system stores information for the most recent 1000 tasks.

COMMAND

removetemplate

DESCRIPTION

The `removetemplate` command removes one or more virtual volume, logical disk, and common provisioning group templates.

SYNTAX

```
removetemplate [options]{<template_name>|<pattern>}...
```

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-pat`

The specified patterns are treated as glob-style patterns and that all virtual volumes matching the specified pattern are removed. By default, confirmation is required to proceed with the command unless the `-f` option is specified. This option must be used if the `pattern` specifier is used.

SPECIFIERS

`<template_name>`

Specifies the name of the template to be deleted, using up to 31 characters. This specifier can be repeated to remove multiple templates.

`<pattern>`

Specifies a glob-style pattern. This specifier can be repeated to remove multiple virtual volumes. If this specifier is not used, the `<template_name>` specifier must be used. See [Glob-Style Pattern](#) on page 2.4 for more information

RESTRICTIONS

None.

EXAMPLES

The following example displays the forced removal of template vv1:

```
cli% removetemplate -f vv1
```

NOTES

None.

COMMAND`removeuser`**DESCRIPTION**

The `removeuser` command removes a user account from the system.

SYNTAX`removeuser [option] <username>...`**AUTHORITY**

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS`<username>...`

Specifies a login name using any combination of letters and numbers. This argument can be repeated to specify multiple user names.

RESTRICTIONS

- Do not remove users `3parsvc` and `3paradm`.
- A user cannot remove oneself. The last user on the system cannot be removed.

EXAMPLES

The following example displays the forced removal of `user1` from the system:

```
cli% removeuser -f user1
User removed.
```

NOTES

- Verify the removal of users by issuing the `showuser` command. See [showuser](#) on page 22.157 for additional information.
- The `removeuser` command does not remove a user's SSH key. Use the `removesshkey` command to remove the user's SSH key.
- The `removeuser` command does not affect currently connected users. If an attempt is made to remove a user that is currently connected, an error message will be returned.

COMMAND

`removeuserconn`

DESCRIPTION

The `removeuserconn` command removes user connections to the current host.

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

SYNTAX

```
removeuserconn [options] <user_ID> <user_name> <IP_address>
```

OPTIONS

`-pat`

Specifies that the `<user_ID>`, `<user_name>`, and `<IP_address>` specifiers are treated as glob-style (shell-style) patterns and all user connections matching those patterns are removed. By default, confirmation is required to proceed with removing each connection unless the `-f` option is specified.

`-dr`

Specifies that the operation is a dry run and no connections are removed.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<user_ID>`

Specifies the ID of the user to be removed.

`<user_name>`

Specifies the name of the user to be removed.

`<IP_address>`

Specifies the IP address of the user to be removed.

RESTRICTIONS

None.

EXAMPLES

The following example displays the forced removal of user `user1` at IP address `127.0.0.1`:

```
cli% removeuserconn -f 2315 user1 127.0.0.1  
Removing user connection Id:2315 Name:user1 Addr:127.0.0.1
```

NOTES

Because user connections can disappear from the time they are listed and the time they are removed, the `removeuserconn` command continues past errors while removing individual connections if the `-pat` option is specified.

COMMAND

removevln

DESCRIPTION

The `removevln` command removes a virtual volume's SCSI LUN export definition from the system.

SYNTAX

```
removevln [options] <VV_name> <LUN> <node:slot:port>|<host_name>
```

AUTHORITY

Super, Edit

OPTIONS

`-novcn`

Specifies that a VLUN Change Notification (VCN) not be issued after removal of the VLUN.

- ◆ For direct connect or loop configurations, a VCN consists of a Fibre Channel Loop Initialization Primitive (LIP).
- ◆ For fabric configurations, a VCN consists of a Registered State Change Notification (RSCN) that is sent to the fabric controller.

`-pat`

Specifies that the `<VV_name>`, `<LUN>`, `<node:slot:port>`, and `<host_name>` specifiers are treated as glob-style patterns and that all VLUNs matching the specified pattern are removed. By default, confirmation is required to proceed with the command unless the `-f` option is specified.

`-dr`

Specifies that the operation is a dry run and no VLUNs are removed.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<VV_name>`

Specifies the volume name, using up to 19 characters.

<LUN>

Specifies the LUN as an integer from 0 through 65536.

<node:slot:port>

Specifies that exports to the specified port are removed. If this specifier is not used, the `host_name` specifier must be used.

`node`

Specifies the system port where `node` is a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the node where `slot` is a number from 0 through 5.

`port`

Specifies the FCS port number of the card in PCI bus slot using 1 through 4.

<host_name>

Requests that exports to the specified host, named using up to 31 characters, are removed. If this specifier is not used, the `node:slot:port` specifier must be used.

RESTRICTIONS

- To remove a specific VLUN, you must supply the same specifiers and options that you used when that VLUN was created. Use the `showvln -t` command to view all created VLUN specifiers and options.
- Issuing the `removevln` command with the `-pat` option specified returns a request for confirmation to remove VLUNs, unless the `-f` option is specified.

EXAMPLES

The following example deletes VLUNs for volume `vv0`, LUN 0, host `host1`:

```
cli% removevln -f vv0 0 host1
```

NOTES

- Verify the removal of VLUNs by issuing the `showvln` command. See [showvln](#) on page 22.164 for more information.

COMMAND

`removevv`

DESCRIPTION

The `removevv` command removes virtual volumes from the system.

SYNTAX

The syntax of the `removevv` command can be as follows:

- `removevv [options] <VV_name>|<pattern>...`
- `removevv [options] -stale`

AUTHORITY

Super, Edit

OPTIONS

`-keepld`

After all the virtual volumes have been removed, do not remove the underlying logical disks. Without this option, the logical disks are removed when they are unused and are not part of a CPG.

`-ld`

Specifies that logical disks that are mapped to the removed virtual volume(s) are also removed if they are not used. This is the default behavior.

`-pat`

Specifies that specified patterns are treated as glob-style patterns and that all virtual volumes matching the specified pattern are removed. By default, confirmation is required to proceed with the command unless the `-f` option is specified. This option must be used if the `pattern` specifier is used.

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-dr`

Specifies that the operation is a dry run and no virtual volumes are removed.

`-stale`

Specifies that all stale volumes can be removed.

SPECIFIERS

`<VV_name>`

Specifies the virtual volume name, using up to 31 characters. This specifier can be repeated to remove multiple virtual volumes. If this specifier is not used, the `pattern` specifier must be used.

`<pattern>`

Specifies a glob-style pattern. This specifier can be repeated to remove multiple virtual volumes. If this specifier is not used, the `<VV_name>` specifier must be used. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

- Issuing the `removevv` command with invalid virtual volume names causes the command to exit without removing any virtual volumes.
- Any virtual volumes exported as VLUNs are not removed.
- Any virtual volume that contains snapshots cannot be removed.

EXAMPLES

The following example removes virtual volume `vv0`:

```
cli% removevv -f vv0
```

NOTES

- By default, this command deletes any unused logical disks that are not also part of a CPG. This is equivalent to using the `-ld` option. The `-ld` option still exists for backward compatibility. Use the `-keepld` option to change the default behavior and keep unused logical disks.
- A newly created logical disk is guaranteed to be clean. Chunklets of logical disks that are removed are cleaned before they are reused. However regions of a logical disk that were previously used (for example by another virtual volume) can contain data from its previous use. If these regions of the logical disk are mapped to your user space of a virtual volume, that data can be visible to the host to which the virtual volume is exported.

If this is a concern, remove logical disks when the virtual volume is removed and use only newly created logical disks for your user space. Previous data in logical disks used for snapshot data space or snapshot admin space is not visible to you because these spaces are only visible after being written with new data.

- Verify the removal of virtual volumes by issuing the `showvv` command. See [showvv](#) on page 22.169 for additional information.

20

Service Commands

In this chapter

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<code>servicehost</code>	20.5
<code>servicemag</code>	20.8

COMMAND

`servicecage`

DESCRIPTION

The `servicecage` command is necessary when executing removal and replacement actions for a drive cage FC-AL module. The `startfc` or `unstartfc` subcommands are used to initiate service on a cage, and the `endfc` subcommand is used to indicate that service is completed.

SYNTAX

The syntax for the `servicecage` command can be one of the following:

- `servicecage remove [-f] <cagename>`
- `servicecage startfc|unstartfc|endfc|resetfc|hresetfc|clearlog [-f] [-ovrd] [a|b]|[0|1] <cage_name>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

Can vary for each subcommand as noted in the following section.

SUBCOMMANDS

`startfc`

Prepare an FC-AL module for removal.

`unstartfc`

Stop the `startfc` subcommand. See [Notes](#) on page 20.4 for additional information about the `unstartfc` subcommand.

`endfc`

Indicates that service on the drive cage is completed and allows the system to resume use of the FC-AL module. Both `startfc` and `unstartfc` need this action to complete the service operation. See [Notes](#) on page 20.4 for additional information about the `endfc` subcommand. Permitted for Edit user in addition to Super and Service users.

resetfc

- ◆ For DC3 cages, soft reset the Fibre Channel interface card.
- ◆ For DC2 and DC4 cages, soft reset the cage. FC-AL specifier is ignored.

hresetfc

- ◆ For DC3 cages, hard reset the Fibre Channel interface card.
- ◆ For DC2 and DC4 cages, hard reset the cage. FC-AL specifier is ignored.

remove

Remove the indicated drive cage (indicated with the `<cage_name>` specifier) from the system. If this subcommand is used, the `a|b` or `0|1` port specifier is not required. This command fails when the cage has active ports or is in use. Permitted for Super user only.

clearlog

- ◆ For DC2 and DC4 cages, clear the log in the cage. FC-AL specifier is ignored.
- ◆ For DC3 cages, `clearlog` is not supported.

OPTIONS**-f**

Forces the operation. When this option is not used, the command requires confirmation before proceeding.

-ovrd

Forces the specified physical disk path offline even if it is the last remaining path.

SPECIFIERS**a|b**

Specifies the side of the specified DC3 drive cage to be serviced. This specifier is not required.

0|1

Specifies the side of the specified DC2 or DC4 drive cage to be serviced. This specifier is not required.

<cage_name>

Specifies the name of the drive cage to be serviced.

RESTRICTIONS

None.

EXAMPLES

The following example displays the commencement of Fibre Channel hot-plugging for drive cage cage0:

```
cli% servicecage startfc -f -ovrd cage0
```

NOTES

- Issuing the `servicecage` command results in chunklet relocation that causes a dip in throughput.
- The `unstartfc` subcommand is provided if a mistake was made when issuing the `servicecage` command. The `unstartfc` subcommand stops the original command.
- After issuing the `startfc` or `unstartfc` subcommands, the `endfc` subcommand must be issued to indicate that service is completed and to restore the drive cage to its normal state.

COMMAND

servicehost

DESCRIPTION

The `servicehost` command executes removal and replacement actions for a host connecting to an InServ Storage Server port.

SYNTAX

The syntax for the `servicehost` command can be one of the following:

- `servicehost list`
- `servicehost remove [-f] [<node:slot:port>] [<WWN_or_iSCSI_name>...]`
- `servicehost copy [-f] <src_node:slot:port>
<WWN_or_iSCSI_name_pattern> <dest_node:slot:port>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

Can vary for each subcommand as noted in the following section.

SUBCOMMANDS

`list`

Displays a list of hosts, ports, and VLUNs for all inactive hosts. Permitted for all users.

`remove`

Removes an inactive host, as specified with the `<WWN_or_iSCSI_name>` specifier, from the indicated port (`<node:slot:port>`) and its associated VLUNs. See [Restrictions](#) on page 20.6 for additional information about the `remove` subcommand.

`copy`

Copies all active VLUNs from the specified source port (as specified with `<src_node:slot:port>`) from host WWNs or iSCSI names matching the specified pattern (`<WWN_or_iSCSI_name_pattern>`) to the destination port (as specified with `<dest_node:slot:port>`). If necessary, the port is reset to target mode.

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

`<node:slot:port>`

Specifies a node. This specifier can only be used with the `remove` subcommand.

`<WWN_or_iSCSI_name>`

Specifies a host's WWN. This specifier can only be used with the `remove` and `copy` subcommands. When used with the `remove` subcommand, this specifier can be repeated.

`<WWN_or_iSCSI_name_pattern>`

Specifies that the indicated WWN or iSCSI name is treated as a glob-style pattern. See [Glob-Style Pattern](#) on page 2.4 for more information.

`<src_node:slot:port>`

Specifies the source port when exporting VLUNs. This specifier can only be used with the `copy` subcommand.

`<dest_node:slot:port>`

Specifies the destination port when exporting VLUNs. This specifier can only be used with the `copy` subcommand.

RESTRICTIONS

- If the `<WWN_or_iSCSI_name>` specifier is not issued with the `remove` subcommand, all inactive hosts on the specified port and their LUNs are removed.
- If the `<node:slot:port>` specifier is not used with the `remove` subcommand, all inactive hosts in the system and their LUNs are removed.

EXAMPLES

The following example displays the creation of a host on port 0:2:1 for the export of VLUNs from port 2:1:1:

```
cli% servicehost copy 2:1:1 20000200000CF790 0:2:1
Are you sure you want to run servicehost?
select q=quit y=yes n=no: y
```


The following example displays the removal of an inactive host from port 2:1:1:

```
cli% servicehost remove 2:1:1 20000200000CF790
Removing inactive host 20000200000CF790 on port 2:1:1
Are you sure?
select q=quit y=yes n=no: y
```

NOTES

None.

COMMAND

`servicemag`

DESCRIPTION

The `servicemag` command executes service on a drive magazine or disk.

SYNTAX

The syntax for the `servicemag` command can be one of the following:

- `servicemag start [options] <cage_ID> <magazine>`
- `servicemag start [options] -pdid <PD_ID_1>...<PD_ID_4>`
- `servicemag resume|unmark [options] <cage_ID> <magazine>`
- `servicemag status [<cage_ID> <magazine>]`
- `servicemag clearstatus <cage_ID> <magazine>`

AUTHORITY

Service, Browse¹



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`start`

Specifies that the `servicemag` command informs the system manager to log or relocate disks on a drive magazine so that the drive magazine can be removed for service.

`resume`

Specifies that the `servicemag` command informs the system manager that a drive magazine is replaced and that data services can be resumed.

`unmark`

Specifies that the `servicemag` operation is stopped and its internal state is reset. Since the `servicemag` operation is a multistep process, specifying `unmark` stops the `servicemag` operation at the completion of the current step.

¹ Browse authority can only issue the `servicemag status` command.

Relocation of chunklets is considered one step and can take from several minutes to several hours (depending on number of chunklets) to complete.

`status`

Specifies that the status of the `servicemag` command operations on a drive magazine are displayed.

`clearstatus`

Clears the log shown by the `servicemag` command status for the given cage and magazine.

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

`-wait`

Specifies that the `servicemag` command must be completed before exiting. If not specified, the `servicemag` command automatically exits before service begins and the remainder of the process proceeds in the background. This option is only valid for the `start` or `resume` operations.

`-log`

Specifies that write operations to chunklets of valid disks are written to a logging area when the magazine is out of service (or removed). When the disks return and the `servicemag resume` option is issued, the data is written from the logging logical disks to those disks. Chunklets are relocated to free or spare space if their failures would result in a RAID set becoming invalid (for example, if two disks would be missing from a RAID-5 logical disk). All other used chunklets are placed in the logging mode. This option is only valid for the `start` operation.

`-nodisks`

Specifies that the serviced drive magazine's disk drives are valid and do not need to be replaced. This option can only be used with the `start` subcommand and `-log` option.

`-partial`

This option can only be used with the `resume` subcommand. Specifies that as many chunklets as possible are relocated. Error messages are printed for those chunklets that could not be relocated.

`-pdid <PD_ID_1>...<PD_ID_3>`

Specifies one to four physical disks (by physical disk ID) that need to be serviced or replaced. If the `-log` option is also specified, logging will only apply to the remaining disks on the magazine and not the ones specified in this option. The disks specified in this option will be vacated out to be replaced and will not be logged. This option can only be used with the `start` subcommand, and cannot be used with the `<cage_ID>` or `<magazine>` specifiers.

`-d`

Displays detailed status of a `servicemag` operation. If the `-d` option is excluded, a summary of the status is displayed. This option is only valid for the `status` subcommand.

SPECIFIERS

`<cage_ID>`

Specifies the ID of the cage. Use the `showcage` command to determine the system's drive cage IDs.

`<magazine>`

Specifies the drive magazine within the specified drive cage to be serviced based on the side of the drive magazine and drive magazine slot number.

- ◆ For drive chassis with a single drive cage (type DC2, DC4, and DC3), the valid syntax is `<position>` (the numeric position of the drive magazine). Position values for DC2 drive cages can be from 0 to 9. Position values for DC3 drive cages can be from 0 to 15.

RESTRICTIONS

Users with Browse level authority can only issue the `servicemag status` command.

EXAMPLES

The following example displays the suspension and resumption of data services on drive magazine 0 in drive cage 2:

```

cli% servicemag start -log -wait 2 0.0
Begin servicemag start -log 2 0.0...
... disks in mag : 2 0.0
...   valid disks:   wwn [2000000087043098] id [20]   diskpos [0]
...                   wwn [2000000087008150] id [21]   diskpos [1]
...                   wwn [20000000870042F6] id [22]   diskpos [2]
...                   wwn [2000000087007E6D] id [23]   diskpos [3]
...   not valid disks:
... mark disk wwn [2000000087043098] id [20] as non usable for ld allocation
... mark disk wwn [2000000087008150] id [21] as non usable for ld allocation
... mark disk wwn [20000000870042F6] id [22] as non usable for ld allocation
... mark disk wwn [2000000087007E6D] id [23] as non usable for ld allocation
... relocating chunklets to spare space
... relocating chunklets of fail sets after logging to spare space
... logging chunklets from pd wwn [2000000087043098] id [20]
... logging chunklets from pd wwn [2000000087008150] id [21]
... logging chunklets from pd wwn [20000000870042F6] id [22]
... logging chunklets from pd wwn [2000000087007E6D] id [23]
... spinning down disk wwn [2000000087043098] id [20]
... spinning down disk wwn [2000000087008150] id [21]
... spinning down disk wwn [20000000870042F6] id [22]
... spinning down disk wwn [2000000087007E6D] id [23]
... bypassing mag 2 0.0
... bypassed mag 2 0.0
servicemag start 2 0.0 -- Succeeded
cli%
cli% sevicemag resume 2 0.0
Begin servicemag resume 2 0.0...
... onlooping mag 2 0.0
... checking for valid disks...
... disks in mag : 2 0.0
...   valid disks:   wwn [2000000087043098] id [20]   diskpos [0]
...                   wwn [2000000087008150] id [21]   diskpos [1]
...                   wwn [20000000870042F6] id [22]   diskpos [2]
...                   wwn [2000000087007E6D] id [23]   diskpos [3]
...   not valid disks:
... playback chunklets from pd wwn [2000000087043098] id [20]
... playback chunklets from pd wwn [2000000087008150] id [21]
... playback chunklets from pd wwn [20000000870042F6] id [22]
... playback chunklets from pd wwn [2000000087007E6D] id [23]
...   74 chunklets still waiting to be played back or relocating...
...  18 chunklets still waiting to be played back or relocating..
... All chunklets played back / relocated.
... no chunklets to move
... marking pd wwn [2000000087043098] id [20] as usable for ld allocation
... marking pd wwn [2000000087008150] id [21] as usable for ld allocation
... marking pd wwn [20000000870042F6] id [22] as usable for ld allocation
... marking pd wwn [2000000087007E6D] id [23] as usable for ld allocation
servicemag resume 2 0.0 -- Succeeded

```

NOTES

- Issuing the `servicemag` command results in chunklet relocation that causes a dip in throughput.
- When a `servicemag` command is issued with the `-log` option, all chunklets on the disks in the drive magazine being serviced are marked as `normal,smag`. This state indicates an active `servicemag` operation on the disks.
 - ◆ Any I/O on the chunklets marked `normal,smag`, changes the states to `logging` and I/O is written to the logging logical disks.
 - ◆ Issuing the `servicemag resume` command causes playback of the log. Any chunklets in the `logging` state enter `playback` state as their data is played back. After all the data is played back, the chunklets return to the `normal` state. Any chunklets in the `normal,smag` state return directly to the `normal` state.
 - ◆ Chunklet states can be checked by issuing either the `showldch` or `showpdch` commands (see [Show Commands](#) on page 22.1).
- By default, the `servicemag` command relocates all chunklets in the magazine to destinations starting first with local (such as on the owning node for the logical disk) spares, then local free space, then remote spare and finally remote free space.
- In the case when a drive needs to be replaced, the `-log` option should always be used in conjunction with the `-pdid` option.
- Replacing disks that have not had data completely relocated can lead to data loss. If the drives need to be replaced, the `-log` option should be used in conjunction with the `-pdid` option.
- For the `servicemag start` command only, instead of using the `<cage_ID>` `<magazine>` specifiers, the disk(s) to be serviced can also be specified using the `-pdid` option.

21

Set Commands

In this chapter

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COMMAND

setalert

DESCRIPTION

The `setalert` command sets the status of system alerts.

SYNTAX

```
setalert new|ack|fixed {<alert_ID>...|-a}
```

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-a`

Specifies that the status of all alerts be set to `new`, `acknowledged` (`ack`), or `fixed`. If not specified, the `<alert_ID>` specifier must be specified on the command line.

SPECIFIERS

`<alert_ID>...`

Specifies that the status of a specific alert be set to `new`, `acknowledged` (`ack`), or `fixed`.

This specifier can be repeated on the command line to indicate several specific alerts. If not specified, the `-a` option must be specified on the command line.

`new|ack|fixed`

Specifies that the alert(s), as indicated with the `<alert_ID>` specifier or with option `-a`, be set as `new`, `acknowledged` (`ack`), or `fixed`.

RESTRICTIONS

None.

EXAMPLES

The following example sets the status of all system alerts as `new`:

```
cli% setalert -a new
```

NOTES

Verify the status of alerts by issuing the `showalert` command. See [showalert](#) on page 22.4 for additional information.

COMMAND

setauthparam

DESCRIPTION

The `setauthparam` command is used to set the authentication and authorization parameters.

SYNTAX

The syntax of the `setauthparam` command can be one of the following:

```
setauthparam [-f] <param> <value>
setauthparam [-f] <map-param> <map-value>...
setauthparam [-f] -clear <param>...
setauthparam [-f] -clearall
```

AUTHORITY

Super

OPTIONS

-f

Does not ask for a confirmation before performing the operation.

-clearall

Clears all the authentication parameters.

-clear

Clears only the specified authentication parameters.

SPECIFIERS

Specifiers for the `setauthparam` command can be issued as the following:

- `<param> <value>` - See [Table 21-1 on page 21.6](#).
- `<map_param> <map_value>` - See [Table 21-3 on page 21.10](#)
- `<param>` - See [Table 21-1 on page 21.6](#).

Table 21-1. Values for Specifiers <param> and <value>

<param>	<value>
ldap-server	Numeric IP address of the LDAP server.
ldap-server-hn	Indicates the host name of the LDAP server. This value must be set when the <code>ldap-reqcert</code> option is set or the <code>sasl-mechanism</code> option is set to GSSAPI. The <i>value</i> is the name of the LDAP server in its certificate or the value of the LDAP principal stored in the Kerberos database, and will usually be a fully-qualified domain name.
ldap-port	Indicates the port of the LDAP server (default: 389 for non-SSL, 636 for SSL).
ldap-ssl	To use SSL when communicating with the LDAP server, set the value to 1. (The default value is 0).
ldap-reqcert	Indicates whether a valid server certificate should be required in order to proceed (The default value is 0).
ldap-ssl-cacert	Indicates the path name of the file containing the certificate of the <i>Certificate Authority</i> that has issued the LDAP server's certificate, or a "–" to prompt you to enter the certificate text.
ldap-StartTLS	Set this parameter to one of the following: <ul style="list-style-type: none"> ■ no – to not request the server use StartTLS. ■ try – to request the server use StartTLS but does not require it to proceed. ■ require – requests that the server uses StartTLS and continues only when it succeeds. (The default is <i>no</i>).
binding	The LDAP binding type must be one of the following: <ul style="list-style-type: none"> ■ simple – use simple binding with the server. ■ SASL - use a SASL mechanism that is expected by the server, with the mechanism set by the <code>sasl-mechanism</code> variable.

Table 21-1. Values for Specifiers `<param>` and `<value>`

<code><param></code>	<code><value></code>
<code>user-dn-base</code>	When using simple binding, the authentication process attempts to bind the user to an entry in the server's directory information tree (DIT). The distinguished name (DN) of the entry is a concatenation of the value of <code>user-attr</code> , "=", the username, ",", and the value of the <code>user-dn-base</code> .
<code>user-attr</code>	Indicates the attribute used to form a DN for simple binding. When the attribute ends with a back slash, the DN is the concatenation of the value of the <code>user-attr</code> variable and the username. When the attribute does not end with a back slash, it is as described for the <code>user-dn-base</code> variable.
<code>sasl-mechanism</code>	When the binding is SASL, the SASL mechanism must be one supported by the LDAP server. The InServ allows the mechanisms of PLAIN, DIGEST-MD5, and GSSAPI.
<code>kerberos-server</code>	Indicates the numeric IP address of the Kerberos server if different from the LDAP server.
<code>kerberos-realm</code>	The Kerberos realm.
<code>allow-ssh-key</code>	Set this value to 1 to allow LDAP users to set a public SSH key with the <code>setsshkey</code> command (default 0). Clearing or setting the variable to 0 disables the setting of new keys for LDAP users but any existing keys remain until they are removed with the <code>removesshkey</code> variable. This parameter only affects LDAP users, not local users.
<code>groups-dn</code>	Indicates the base of the subtree in the DIT in which to search for objects that hold group information. It functions mutually exclusively with the <code>accounts-dn</code> variable.
<code>group-obj</code>	Indicates the <code>objectClass</code> attribute of a group object.
<code>group-name-attr</code>	The attribute in the group object that holds the group's name.
<code>member-attr</code>	The attribute that holds the names of users in the group.

Table 21-1. Values for Specifiers <param> and <value>

<param>	<value>
accounts-dn	Indicates the base of the subtree in the DIT in which to search for objects that hold account information. It functions mutually exclusively with the groups-dn variable.
account-obj	The objectClass attribute of an account object.
account-name-attr	The attribute of an account object that holds the user's username.
memberof-attr	The attribute that holds the name of a group of which the user is a member.

Table 21-1. Values for Specifiers `<param>` and `<value>`

<code><param></code>	<code><value></code>
<code>domain-name-attr</code>	<p>When set, the mapping of groups to domains is enabled. For a user that is a member of a group that maps to a privilege level, the value of <code>domain-name-attr</code> is used to look up an attribute in the group that holds the name of the domain.</p> <p>If the domain is too long or contains characters that are not allowed in a domain name, the name is truncated to the maximum length of a domain name and invalid characters are replaced with an underscore (<code>_</code>).</p>
<code>domain-name-prefix</code>	<p>When <code>domain-name-prefix</code> is set, the value of the attribute specified by <code>domain-name-attr</code> is a candidate domain name. The value of <code>domain-name-prefix</code> is a character string used to extract the domain name from the candidate. The value is an optional exclamation mark (<code>!</code>) followed by a character string called the prefix. The exclamation mark is a flag that means the presence of the prefix is required and is described more in the paragraphs that follow.</p> <p>The candidate domain name is searched for the presence of the prefix and if found, the domain name starts after the first occurrence of the prefix and stops before the first space or tab following it or at the end of the candidate domain name.</p> <p>If the prefix is not found, the behavior depends on the flag. If the exclamation mark was not used (there is no flag), the candidate domain name becomes the domain name. If the flag is present, the candidate domain name is rejected and there is no domain name.</p> <p>As a last step, and as described for <code>domain-name-attr</code>, domain names can be truncated and have invalid characters replaced.</p>

Some examples of the effects of `domain-name-prefix` are shown in [Table 21-2 on page 21.10](#):

Table 21-2. Examples of Domain Name Prefix Effects

candidate	domain-name-prefix	result
dom1	ISDom=	dom1
ISDom=dom2	ISDom=	dom2
ISDom=dom3	!ISDom=	dom3
dom4	!ISDom=	

In the last case there is no resulting domain name because `ISDom=` does not appear in the candidate.

Table 21-3. Values for Specifiers `<map_param>` and `<map_value>`

<code><map-param></code>	<code><map-value></code>
super-map	A group name that grants the user the Super privilege level if the user is a member of that group. Multiple group names can be specified using multiple <code><map-value></code> arguments. A value of <code>"*"</code> matches any group name.
service-map	Same as super-map, but for the Service level.
edit-map	Same as super-map, but for the Edit level.
browse-map	Same as super-map, but for the Browse level.

EXAMPLES

For a comprehensive example of the `setauthparam` command used during LDAP setup, see *LDAP Connection* in Chapter 4 of the *InForm OS CLI Administrator's Manual*.

NOTES

- Users who have been provided with a password that allows successful binding with the LDAP server will nevertheless be denied access if they are not members of any of the groups specified by the map parameters.

- The matching of a user's groups with the mapping rules is done in the order of the mapping parameters provided previously. When there are multiple matches, the first match determines the user's privilege level.
- Domain names found with the use of `domain-name-attr` and `domain-name-prefix` are only potential domains and a user will only have privileges in those if they are actually existing domains. The `showdomain` command will list existing domains.
- The `showauthparam` command displays authentication parameter settings and the `checkpassword` command can be used to see how the parameters are used to bind with an LDAP server and search for data to determine the user's privilege level.
- When 3PAR Virtual Domains are enabled, you can only have Super or Service privilege levels for the domain all. Any other domain names are ignored for Super or Service level users. You can only have the Service privilege level when no other domains match for levels other than Super or Service. If other such domains match, the Service level match is ignored.

COMMAND

setbattery

DESCRIPTION

The `setbattery` command sets battery information such as the battery's expiration date, its recharging time, and its serial number. This information gives the system administrator a record or log of the battery age and battery charge status.

SYNTAX

```
setbattery [options <arg>] <node_ID> <powersupply_ID> <battery_ID>
```

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-s <serial_number>`

Specifies the serial number of the battery using a limit of eight alphanumeric characters.

`-x <exp_date>`

Specifies the expiration date of the battery (mm/dd/yyyy). The expiration date cannot extend beyond 2037.

mm

Specifies the month of expiration using a number from 1 through 12.

dd

Specifies the day of expiration using a number from 1 through 31.

YYYY

Specifies the year of expiration using a 4-digit number greater than 2000.

`-l`

Specifies that the battery test log is reset and all previous test log entries are cleared.

-r

Specifies that the battery recharge time is reset and that 10 hours of charging time are required for the battery to be fully charged.

SPECIFIERS

<node_ID>

Specifies the node number where the battery is installed.

<powersupply_ID>

Specifies the power supply number on the node using either 0 (left side from the rear of the node) or 1 (right side from the rear of the node).

<battery_ID>

Specifies the battery number on the power supply where 0 is the first battery.



NOTE: The <powersupply_ID> and <battery_ID> specifiers can be obtained from the output of the `showbattery` command.

RESTRICTIONS

None.

EXAMPLES

The following example resets the battery test log and the recharging time for a newly installed battery on node 2, power supply 1, and battery 0, with an expiration date of July 4, 2006:

```
cli% setbattery -x 07/04/2006 2 1 0
```

NOTES

To view battery status information, issue the `showbattery` command. See [page 22.8](#) for information about the `showbattery` command.

COMMAND

setcage

DESCRIPTION

The `setcage` command enables service personnel to set or modify parameters for a drive cage.

SYNTAX

```
setcage [option <arg>]... <cage_name>
```

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

None.

OPTIONS

`position <position>`

Sets a description for the position of the cage in the cabinet, where `<position>` is a description to be assigned by service personnel (for example, "left-top").

`ps <model>`

Sets the model of a cage power supply, where `<model>` is a model name to be assigned to the power supply by service personnel. This model name appears in the `Model` column of the `showcage -d` command output.

SPECIFIERS

`<cage_name>`

Indicates the name of the drive cage that is the object of the `setcage` operation.

RESTRICTIONS

None.

EXAMPLES

The following example demonstrates how to assign `cage1` a position description of "Side Left":

```
cli% setcage position "Cabinet 0 Bay 5 Side Left" cage1
```

The following example demonstrates how to assign model names to the power supplies in `cage1`. In this example, `cage1` has two power supplies (0 and 1). Both power supplies are assigned model name `Magnetek`.

```
cli% setcage ps 0 Magnetek ps 1 Magnetek cage1
```

NOTES

- The parameters specified by the `setcage` command appear in the `showcage -d` output (see [page 22.15](#)).
- The power supply model cannot be modified if the information is automatically retrieved from the system.

COMMAND

setcim

DESCRIPTION

The `setcim` command sets the properties of the CIM server, including options to enable or disable the HTTP and HTTPS ports for the CIM server. The command also provides the ability to configure the port numbers associated with these two protocols. In addition, it allows users to enable or disable the SLP port.

SYNTAX

setcim [options]

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

None.

OPTIONS

-f

Forces the operation of the `setcim` command, bypassing the typical confirmation message.



NOTE: At least one of the following options are required when issuing the `setcim` command.

-slp enable|disable

Enables or disables the SLP port.

-http enable|disable

Enables or disables the HTTP port.

-httpport <int>

Sets the HTTP port (1024 - 65535). The default value is 5988.

`-https enable|disable`

Enables or disables the HTTPS port.

`-httpsport <int>`

Sets the HTTPS port (1024 - 65535). The default value is 5989.

SPECIFIERS

None.

RESTRICTIONS

- You cannot disable both of the HTTP and HTTPS ports.
- You cannot set the same port number for both of the HTTP and HTTPS ports.

EXAMPLES

To disable the HTTPS ports:

```
cli% setcim -https disable
Warning: The CIM server is active and will restart.
Are you sure you want to continue (Y/N)? Y
```

To enable the HTTPS port and set the HTTPS port number to 1025:

```
cli% setcim -https enable -httpsport 1025
Warning: The CIM server is active and will restart.
Are you sure you want to continue (Y/N)? Y
```

To disable HTTP and HTTPS ports:

```
cli% setcim -http disable -https disable
WARNING: CIM server is active and it will restart.
Are you sure you want to continue?
select q=quit y=yes n=no: y
Error: Cannot set both http and https to disabled
```

To configure the same port number for both of the HTTP and HTTPS:

```
cli% setcim -httpport 1024 -httpsport 1024
WARNING: CIM server is active and it will restart
Are you sure you want to continue?
select q=quit y=yes n=no: y
Error: Conflict on http and https port
```

NOTES

When the CIM server is active, a warning message appears to inform you of the current status of the CIM server and asks you for confirmation to continue or not. The `-f` option forces the action without a warning message.

COMMAND

setclienv

DESCRIPTION

The `setclienv` command sets the CLI environment parameters.

SYNTAX

`setclienv <parameter> <value>`

AUTHORITY

Edit, Browse, Service

OPTIONS

None.

SPECIFIERS

The specifiers include the parameters and values to which the parameters should be set. Valid parameters and their values are as follows:

<parameter>	<value>
currentdomain	Enter one of the following: <ul style="list-style-type: none">■ The name of the domain that you wish to set as the working domain for the current CLI session.■ <code>-unset</code> to set no current domain.
listdom	Enter one of the following: <ul style="list-style-type: none">■ 0 - (Default) Do not include the domain column in the output.■ 1 - Include domain column where relevant.
csvtable	Enter one of the following: <ul style="list-style-type: none">■ 0 - (Default) Normal table printing format.■ 1 - Comma Separated Values (CSV) format.
nohdtot	Enter one of the following: <ul style="list-style-type: none">■ 0 - (Default) Show header and total lines.■ 1 - Does not show the header and total lines.

<parameter>	<value>
hafter	<nlines> - Specifies the number of lines of data to display before an output header is displayed. If <nlines> is 10 or more, print the header after every <nlines> of data. If <nlines> is less than 10, print only the header at the beginning.
editor	<p>NOTE: This parameter is only supported when connected via SSH.</p> <p>Specifies the command line editing mode. Enter one of the following:</p> <ul style="list-style-type: none">■ emacs - (Default) Use emacs-style line editing.■ vi - Use v-style line editing.

RESTRICTIONS

None.

EXAMPLES

In the following example, the CLI environment is set to display domains information:

```
cli% setclienv listdom 1
```

NOTES

This command is only available when you are using a CLI shell or SSH.

COMMAND

setcpg

DESCRIPTION

The `setcpg` command modifies existing common provisioning groups.

AUTHORITY

Super, Edit, Service



NOTE: You need access to all domains in order to run this command.

SYNTAX

```
setcpg [options <arg>] <CPG_name>
```

OPTIONS

`-sa <LD_name>`

Specifies additional logical disks that have already been created to be used for snapshot administration space allocation. The `<LD_name>` argument can be repeated to specify multiple logical disks.

`-sd <LD_name>`

Specifies additional logical disks that have already been created to be used for snapshot data space allocation. The `<LD_name>` argument can be repeated to specify multiple logical disks.

`-aw <percent>`

Specifies the percentage of used snapshot data space or snapshot administration space that, when reached, results in a warning alert. To disable the warning, enter 0.



NOTE: The following options, `-sdgs`, `-sdgl`, and `-sdgw` control the auto logical disk creation for the common provisioning group's snapshot data regions. Auto logical disk creation occurs when the amount of free logical disk space falls below the specified grow (enlarge) size setting options (`-sdgs`, `-sdgl`).

`-sdgs <size>`

Specifies the growth increment, the amount of logical disk storage created, on each autogrow operation. The amount of disk storage can be specified in MB (default) or GB (using `g` or `G`). The default growth increment is fixed at 32 GB, but the minimum growth increment varies according to the number of controller nodes in the system. The following table displays the default and minimum growth increments per number of nodes:

Table 21-4. Growth Increment Per Number of Nodes

Number of Nodes	Default	Minimum
1-2	32G	8G
3-4	64G	16G
5-6	96G	24G
7-8	128G	32G

`-sdgl <size>`

Specifies that the autogrow operation is limited to the specified storage amount that sets the growth limit. The storage amount can be specified in MB (default) or GB (using `g` or `G`). The default size is 0.

`-sdgw <size>`

Specifies that the threshold of used logical disk space, when exceeded, results in a warning alert. This sets the growth warning. The threshold can be specified in MB (default) or GB (using `g` or `G`). The default size is 0.



NOTE: The following options, `-t`, `-ssz`, `-rs`, `-ss`, `-ha`, `-ch`, and `-p` are used to control auto logical disk creation.

`-t r0|r1|r5`

Specifies the RAID type of the logical disk. Enter `r0` for RAID 0, `r1` for RAID 1 or `r5` for RAID 5. If not specified, the default is RAID 1.

`-ssz <size_number_chunklet>`

Specifies the set size in terms of chunklets. Enter 1 for RAID 0, an integer from 2 through 8 for RAID 1, and an integer from 3 through 9 for RAID 5. If not specified, the default value for RAID 1 is 2 and the default value for RAID 5 is 4.

`-rs <size>`

Specifies the number of sets in a row using an integer from 1 through 2147483647. If not specified, no row limit is imposed.

`-ss <size_KB>`

Specifies the step size in kilobytes using a number that is a multiple of 32. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1 and 128 KB for RAID 5.

`-ha port|cage|mag`

RAID 1 or RAID 5 can support a failure of one port pair, one drive cage, or one drive magazine. For RAID 1 and RAID 5, the user default, snapshot administration and snapshot data areas are cage. For RAID 0 the default for the snapshot administration area is cage.

`-ch last|first`

Specifies the characteristics of the chunklets, either `first` (fastest chunklets) or `last` (slowest chunklets) used to make up the logical disk. If no argument is specified, the default characteristic is `first`.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (`item`). Multiple nodes are separated with a single comma (`1,2,3`). A range of nodes is separated with a hyphen (`0-7`).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0-7).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0-4).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0-3).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0-7).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0-3).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0-3).



NOTE: The following options, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid` and `-devtype` are used to select the disks that are used to create common provisioning groups based on the characteristics of the disk.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for logical disk creation.

`-devId <ID>`

Specifies that physical disks identified by their device IDs are selected for logical disk creation. Physical disk IDs can be specified in a comma-separated list. Disk IDs can be shown by issuing the `showpd -i` command.

`-devtype <FC|NL>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks used must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

`-sax <LD_name>`

Specifies that the logical disk, as identified with the `<LD_name>` argument, used for snapshot administration space allocation be removed. The `<LD_name>` argument can be repeated to specify multiple logical disks.

`-sdx <LD_name>`

Specifies that the logical disk, as identified with the `<LD_name>` argument, used for snapshot data space allocation be removed. The `<LD_name>` argument can be repeated to specify multiple logical disks.

SPECIFIERS

<CPG_name>

Specifies the name of the common provisioning group being modified.

RESTRICTIONS

None.

EXAMPLES

The following example displays the modification of the autogrowth parameters for common provisioning group `cpgl`:

```
cli% setcpgr -sdgs 16 -sdgl 48 -sdgw 36 cpgl
```

NOTES

With this command, you can change the device type of a CPG from logical disks of one device type to logical disks of another device type (device types are Fibre Channel or Nearline). This implies that, within a CPG, one can have logical disks of type `FC` and type `NL`. However, this is only permitted so that, if a user wants to change the type of a CPG from `FC` to `NL`, they can first change the new logical disk creation characteristics using `setcpgr` and then use `region moves` to change the device types of existing logical disks. For this same reason, users are permitted to add logical disks of a different device type to a CPG.

COMMAND

setdate

DESCRIPTION

The `setdate` command allows you to set the system time and date on all nodes.

SYNTAX

The syntax for the `setdate` command can be one of the following:

- `setdate <MMDDhhmm> [[<CC>] <YY>] [<.ss>]`
- `setdate -tzlist [group]`
- `setdate -tz <tzname>`

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-tzlist [group]`

Displays a timezone within a group, if a group is specified. If a group is not specified, displays a list of valid groups.

`-tz <tzname>`

Sets the timezone on all nodes. The option must have a valid `tzname` from the list provided with the `-tzlist` command.

SPECIFIERS

`<MMDD>`

Specifies the month (`MM`) and day (`DD`).

`<hhmm>`

Specifies the hour (`hh`) and minute (`mm`) on a 24-hour clock.

<CC>

Specifies the century (CC) and cannot be used unless a year is specified (YY). This specifier is not required on the command line.

<YY>

Specifies a year (YY). This specifier is not required on the command line.

<.ss>

Specifies seconds (ss). This specifier is not required on the command line.

Specifiers can only be used in combinations as listed in [Restrictions](#) in the section that follows.

RESTRICTIONS

Specifiers must be provided in one of the combinations listed as follows when issuing the `setdate` command:

- MMDDhhmm
- MMDDhhmmYY
- MMDDhhmmCCYY
- MMDDhhmm.ss
- MMDDhhmmYY.ss
- MMDDhhmmCCYY.ss

EXAMPLES

The following example displays the current date on the node:

```
cli% showdate
Node Date
4      Mon Oct 10 16:14:28 PDT 2005
5      Mon Oct 10 16:14:28 PDT 2005
6      Mon Oct 10 16:14:28 PDT 2005
7      Mon Oct 10 16:14:28 PDT 2005
```

The following example displays the timezones with the `-tzlist` option:

```
cli% setdate -tzlist  
  
Africa  
  
America  
  
Antarctica  
  
Arctic  
  
Asia  
  
...
```

The following example narrows down the list to the required timezone of `Etc`:

```
cli% setdate -tzlist Etc  
  
Etc/GMT  
  
Etc/GMT+0  
  
Etc/GMT+1  
  
...
```

The following example shows the timezone being set:

```
cli% setdate -tz Etc/GMT  
Timezone set successfully.
```

The following example verifies the timezone is set to the required setting:

```
cli% showdate

Node Date
4      Mon Oct 10 23:14:52 GMT 2005
5      Mon Oct 10 23:14:52 GMT 2005
6      Mon Oct 10 23:14:52 GMT 2005
7      Mon Oct 10 23:14:52 GMT 2005
```

NOTES

Check node dates by issuing the `showdate` command. See [showdate](#) on page 22.29 for additional information.

COMMAND

setdomain

DESCRIPTION

The `setdomain` command sets the parameters and modifies the properties of a domain.

SYNTAX

```
setdomain [options <arg>] <domain_name>
```

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-name <name>`

Changes the name of the domain.

`-comment <comment>`

Specifies comments or additional information for the domain. The comment can be up to 511 characters long and must be enclosed in quotation marks. Unprintable characters are not allowed within the `<comment>` specifier.

SPECIFIERS

`<domain_name>`

Indicates the name of the domain.

RESTRICTIONS

None.

EXAMPLE

In the following example, the name of a domain named `Domain1` is changed to `DomainX`:

```
cli% setdomain -name DomainX Domain1
```

The following example displays the addition of a comment to the domain Engineering:

```
cli% setdomain -comment "This is a comment for engineering." Engineering
```

NOTES

None.

COMMAND

sethost

DESCRIPTION

The `sethost` command sets properties on existing system hosts, including options to annotate a host with descriptor information such as physical location, IP address, operating system, model, and so on. The command also provides the ability to configure or remove iSCSI CHAP authentication information.

SYNTAX

The syntax for the `sethost` command can be one of the following:

- `sethost [options <arg>] <host_name>`
- `sethost initchap [-f] [options <arg>] <secret> {<host_name>|<pattern>}...`
- `sethost targetchap [-f] [options <arg>] <secret> {<host_name>|<pattern>}...`
- `sethost removechap [-target] [-f] {<host_name>|<pattern>}...`

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`initchap`

Sets the initiator CHAP authentication information on one or more hosts.

`targetchap`

Sets the target CHAP authentication information on one or more hosts.

`removechap`

Removes CHAP authentication information. By default, this removes all CHAP information for all specified hosts. Using this subcommand with the `-target` option removes only target CHAP information.

OPTIONS

`-loc <location>`

Specifies the location of the host.

`-ip <IP_address>`

Specifies the IP address of the host.

`-os <OS>`

Specifies the operating system running on the host.

`-model <model>`

Specifies the model of the host.

`-contact <contact>`

Specifies the owner of the host and contact information.

`-comment <comment>`

Specifies any additional information for the host.

`-f`

Do not ask for confirmation before performing the operation.

`-chapname <chapname>`

Used to specify the initiator or target CHAP name. If this option is not specified, then the initiator CHAP name defaults to the host name and the target CHAP name defaults to the 3PAR System name. This option can only be used with the `initchap` and `targetchap` subcommands.

`-hex`

The CHAP secret is treated as a hex number. This option can only be used with the `initchap` and `targetchap` subcommands.

`-target`

Removes only the target CHAP authentication. This option can only be used with the `removechap` subcommand.

`-name <hostname>`

Specifies the new name of the host up to 31 characters in length.

SPECIFIERS

<host_name>

Name of the host with a maximum of 31 characters in length.

<pattern>

Specifies that the properties are set for all hosts matching the specified pattern.

<secret>

The CHAP secret for the host or the target. If `-hex` is used, the CHAP secret is treated as a hex number. Otherwise it should be a printable ASCII string 12 to 16 spaces in length with no spaces, or 16 bytes in HEX.



NOTE: The CHAP configuration operations are applied to all hosts whose names match one or more of the specified <hostname> or <pattern>. The patterns are treated as glob-style (shell-style) patterns (see Help on `sub, globpat`).

EXAMPLES

The following example displays the setting of a host.:

```
cli% sethost -contact "Joe Smith" -model "Sun Ultra 60" queasy10
cli% sethost initchap "MyChapSecret" queasy10
cli% sethost targetchap -hex "30313233343536373839303132333435" queasy10
cli% sethost removechap -target queasy10
```

NOTES

- Verify modification of host properties by issuing the `showhost` command.
- Remove descriptors by passing an empty string to the command.
- The options that allow for adding descriptive information are for annotation purposes only; the storage server does not actively use the information provided here.

COMMAND

setlicense

DESCRIPTION

The setlicense command sets the license key information.

SYNTAX

setlicense [options <arg>]

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

-f <filename>

Specifies the file from which the license key is read.

-noconfirm

Specifies that the system does not prompt for confirmation for the new license key.

SPECIFIERS

None.

RESTRICTIONS

The entered license key is accepted only if it is recognized as a valid key. A valid license key includes an appropriate serial number and is associated with the number of nodes in the system for which the license key is being entered.

EXAMPLES

The following example displays the setting of a license key:

```
cli% setlicense
Please enter the new license key below. When finished, press enter twice. If
the key is entered by hand, note that characters other than letters and
numbers are ignored, and the key is not case-sensitive.

60R3-0C1G...
```

NOTES

- This command prompts for a new license key. To finish entering the license key, press ENTER on a blank line.
- When the license key is being interpreted, all characters other than letters (without case-sensitivity) and numbers are ignored, and the letters are not case-sensitive.
- After the new license key has been entered, the changes between the existing license key and the new license key are displayed, and there is a prompt to confirm the changes unless the `-noconfirm` option is given, in which case the information is not displayed, and the new license key is entered immediately.

COMMAND

setnet

DESCRIPTION

The `setnet` command sets the administration network interface configuration.

AUTHORITY

Service, Super



NOTE: You need access to all domains in order to run this command.

SYNTAX

The syntax for the `setnet` command can be one of the following:

- `setnet startaddr <old_IP> <new_IP> <new_netmask>`
- `setnet startgateway <new_gateway>`
- `setnet finish [-f]`
- `setnet abort`
- `setnet cleargateway [-f]`
- `setnet speed <IP_addr> auto|<mbps> <duplex>`
- `setnet failoverping <IP_addr> <ping_addr>|none`
- `setnet ntp none|<server_addr>`
- `setnet changenode [<node_ID>]`

SUBCOMMANDS

`startaddr`

Specifies that the system start switching the old IP address (`<old_IP>` specifier) to the new IP address (`<new_IP>` specifier) with the specified netmask (`<new_netmask>` specifier).

startgateway

Specifies that if there is no gateway currently defined, then the gateway is immediately set to the specified IP address (`<new_gateway>` specifier). If a gateway is currently defined, then the gateway is switched to the specified IP address, as indicated with the `<new_gateway>` specifier.

finish

Specifies that outstanding changes from the `startaddr` and `startgateway` subcommands be completed, provided that they have been verified by the CLI or Management Console connecting to the new address or new gateway.

abort

Specifies that any attempt to configure a new IP address or gateway fails. The system returns to its previous state.

cleargateway

Specifies that the existing system gateway is removed.

speed

Specifies that the network interface is set to the specified speed and duplex as indicated with the `<mbps>` and `<duplex>` specifiers.

failoverping

Specifies that on IP failover, a ping is sent to the specified IP address as indicated with the `<ping_addr>` specifier.

ntp none | ntp <serveraddr>

Specifies the NTP server the system should use to synchronize its clocks. The server must be specified as an IP address.

changenode

Forces the system to change which node has an active Ethernet interface. If a node ID is specified, it switches to that node. Otherwise, any node with a connected Ethernet interface is chosen.



WARNING: If successful, this command causes any CLI or Management Console clients currently connected to lose their connection.

OPTIONS

`-f`

Specifies that the operation is forced even if verification has not occurred. This option can only be used with the `finish` and `cleargateway` subcommands.

SPECIFIERS

`<old_IP>`

Specifies an existing IP address that is to be changed. This specifier is used in conjunction with the `<new_IP>` and `<new_netmask>` specifiers and can only be used with the `startaddr` subcommand.

`<new_IP>`

Specifies a new IP address to which the system is configured. This specifier is used in conjunction with the `<old_IP>` and `<new_netmask>` specifiers and can only be used with the `startaddr` subcommand.

`<new_netmask>`

Specifies a new netmask to which the system is configured. This specifier is used in conjunction with the `<old_IP>` and `<new_IP>` specifiers and can only be used with the `startaddr` subcommand.

`<new_gateway>`

Specifies the IP address of the new gateway for the system. This specifier can only be used with the `startgateway` subcommand.

`auto|<mbps> <duplex>`

Specifies that the speed of the network interface is either auto negotiated (`auto`), or specified manually using the `<duplex>` and `<mbps>` specifiers.

`<mbps>`

Specifies the speed of the network interface. Valid values are either 10 or 100. This specifier can only be used with the `<duplex>` specifier and with the `speed` subcommand.

`<duplex>`

Specifies the duplex of the network interface. Valid values are either `half` or `full`. This specifier can only be used with the `<mbps>` specifier and with the `speed` subcommand.

<IP_addr>

Specifies the IP address of the node. This specifier can only be used with the `failoverping` subcommand.

<ping_addr> | none

Specifies that during an IP failover, a ping either be sent to the specified IP address (<ping_addr>) or not sent at all (none). This specifier can only be used with the `failoverping` subcommand.

[<node_ID>]

Specifies the node, by ID, that has an active Ethernet interface. This specifier can only be issued with the `changenode` subcommand. This specifier is not required.

RESTRICTIONS

None.

EXAMPLES

The following example displays the switching of the old IP address with a new IP address and netmask:

```
cli% setnet startaddr 10.0.23.42 192.168.5.218 255.255.252.0
Change of IP address successfully started.
```

The following example displays the gateway being cleared:

```
cli% setnet cleargateway

If the machine that the 3Par CLI is running on is not on the same subnet as
the 3Par InServ it is connected to, clearing the gateway will render the
InServ unreachable from that machine, and any future connections will need
to be made from a system which is on the same subnet as the InServ system.

Are you sure you want to clear the gateway (y/n)?
y
Gateway modified successfully.
```

NOTES

- To make it possible to change the network configuration without running the risk of losing contact with the system because of misconfiguration, the `setnet` command uses a two step process. When a new IP address is specified with the `setnet startaddr` command,

the system is configured to listen as both the old and new IP addresses. When a new gateway is specified with the `setnet gateway` command, the system switches between the old and new gateways when it sees packets addressed to it being routed through those gateways. After a connection has been made with the new configuration, the `setnet finish` command can be used to remove the old configuration. While in the middle of this process, additional work must be done by the system. It is preferable to run the `setnet finish` command after the new configuration has been verified.

- When changing gateways, starting a CLI connection takes longer than usual, as the first reply packet is typically routed through the previously used gateway address.

COMMAND

setnode

DESCRIPTION

The `setnode` command sets the properties of the node components such as the serial number of the power supply.

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SYNTAX

```
setnode ps <PS_ID> -s <serial_number> <node_ID>
```

SUBCOMMAND

ps

Sets the power supply properties.

OPTIONS

-s <serial_number>

Specifies the serial number up to eight characters in length. This option is required.

SPECIFIERS

<PS_ID>

Specifies the power supply ID.

<node_ID>

Specifies the node ID.

RESTRICTIONS

None.

EXAMPLE

The following example displays the node power supply:

```
cli% shownode -ps
Node PS -Serial- -PSState-- FanState ACState DCState -BatState- ChrgLvl(%)
  0  0  --          NotPresent --          --          --          NotPresent      0
  0  1  FFFFFFFF OK          OK          OK          OK          OK          0
  1  0  FFFFFFFF OK          OK          OK          OK          OK          0
  1  1  --          NotPresent --          --          --          NotPresent      0
cli%
cli% setnode ps 1 -s 12345678 0
cli% shownode -ps
Node PS -Serial- -PSState-- FanState ACState DCState -BatState- ChrgLvl(%)
  0  0  --          NotPresent --          --          --          NotPresent      0
  0  1  12345678 OK          OK          OK          OK          OK          0
  1  0  FFFFFFFF OK          OK          OK          OK          OK          0
  1  1  --          NotPresent --          --          --          NotPresent      0
cli%
cli% setnode ps 0 -s aabbccdd 1
cli% shownode -ps
Node PS -Serial- -PSState-- FanState ACState DCState -BatState- ChrgLvl(%)
  0  0  --          NotPresent --          --          --          NotPresent      0
  0  1  12345678 OK          OK          OK          OK          OK          100
  1  0  AABCCDD OK          OK          OK          OK          OK          100
  1  1  --          NotPresent --          --          --          NotPresent      0
cli%
cli% setnode ps 0 -s aabbccdde 1
Error: The serial number aabbccdde is too long, should be less than 9
characters.
```

NOTE

None.

COMMAND

setntp

DESCRIPTION

The `setntp` command sets the system network time protocol (NTP) server.

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

SYNTAX

`setntp <server_IP_address> | none`

OPTIONS

None.

SPECIFIERS

`<server_IP_address>`

Specifies the IP address of the NTP server to which the InServ system synchronizes its internal clocks.

`none`

Specifies that the InServ system should not synchronize its internal clocks with an external NTP server. Instead, the InServ system synchronizes its clocks internally.

RESTRICTIONS

None.

EXAMPLES

The following example displays the setting of the system NTP server:

```
cli% setntp 192.168.1.1
NTP server successfully updated.
```

NOTES

None.

COMMAND

setpassword

DESCRIPTION

The `setpassword` command allows a user with Super level privileges to change the password for any user and create a password file on a client. Edit-, browse-, or service-level users can use the `setpassword` command to change their own passwords or save their password files on a client.

SYNTAX

`setpassword [options <arg>]`

AUTHORITY

Super, Edit, Browse, Service

Only the Super user can edit the password of a different user.

OPTIONS

`-save` | `-saveonly`

This option cannot be used independently of the `-file` option.

`-save`

Specifies that the password, as specified with the `-file` option, is saved on both the InServ storage system and on a client of the system.

`-saveonly`

Specifies that the password, as specified with the `-file` option, is only saved on the client.

`-file <pwfile>`

Specifies the password file to be saved. The `pwfile` can be any valid file name in the client system. This option cannot be used independently of the `-save` or `-saveonly` options.

`-u <username>`

Specifies the login name of the user whose password is being changed. If a login name is not specified, the command defaults to the current user.

SPECIFIERS

None.

RESTRICTIONS

- Only a user with Super level privileges can set another user's password.
- Passwords can be no longer than eight non-null characters, and must be at least six non-null characters long.

EXAMPLES

The following example shows how to set a user's (user1) password on an InServ storage system and on a client:

```
cli% setpassword -save -file <insertfile> user1
```

The following example displays the prompts encountered when changing a user's (user1) password:

```
cli% setpassword -u user1
password:
Old password:
```

NOTES

- The format of the entry in the file is <username> <encrypted_password>. This file may be referenced by the TPDWFILE environment variable or -pwf command line option for subsequent commands.
- Note that the -save or -saveonly option requires the -file option.
- Without any options, the command will prompt to change the invoking user's password on the InServ system.
- For additional information about password files, see the *InForm OS Concepts Guide* and the *InForm OS CLI Administrator's Manual*.

COMMAND

setpd

DESCRIPTION

The `setpd` command marks a physical disk as allocatable or non allocatable for logical disks.

SYNTAX

`setpd ldalloc on|off <PD_ID>...`

AUTHORITY

Edit, Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`ldalloc on|off`

Specifies that the physical disk, as indicated with the `PD_ID` specifier, is either allocatable (`on`) or nonallocatable for logical disks (`off`).

OPTIONS

None.

SPECIFIERS

`<PD_ID>...`

Specifies the physical disk identification using an integer.

RESTRICTIONS

None.

EXAMPLES

The following example displays physical disk 0 marked as non allocatable for logical disks.

```
cli% setpd ldalloc off 0
```

NOTES

- This command can be used when the system has disks that are not to be used until a later time.
- Verify the status of physical disks by issuing the `showpd` command. See [showpd](#) on page 22.77.

COMMAND

setrcopygroup

DESCRIPTION

The `setrcopygroup` command performs the following actions:

- Sets the policy of the Remote Copy volume group for dealing with I/O failure and error handling.
- Switches the direction of transfer between volume groups.
- Sets a resynchronization period for volume groups in asynchronous periodic mode.
- Sets the group's mode.

SYNTAX

The syntax for the `setrcopygroup` command can be one of the following:

- `setrcopygroup pol <policy> <group_name>`
- `setrcopygroup period <period_value> <target_name> <group_name>`
- `setrcopygroup mode <mode_value> <target_name> <group_name>`
- `setrcopygroup <dr_operation> [options] <target_name|group_name>...`

AUTHORITY

Edit

SUBCOMMANDS

`pol`

Sets the policy of the Remote Copy volume group for dealing with I/O failure and error handling.

`period`

Specifies that groups that are in asynchronous periodic mode should be periodically synchronized in accordance with the specified `<period_value>`.

`mode`

Specifies the mode to which the volume group is set.

OPTIONS

`-t`

Specifies that the `setrcopygroup <dr_operations>` command be applied to all relevant groups of the indicated target.

`-f`

Does not ask for confirmation for disaster recovery commands.

`-nostart`

Specifies that groups are not started after role reversal is completed through the `recover` and `restore` specifiers.

`-nosync`

Specifies that groups are not started after role reversal is completed through the `recover` specifier.

`-nopromote`

Specifies that the synchronized snapshot of groups that are switched from primary to secondary with the `reverse` specifier are not promoted to the base volume. This option is only valid for the `reverse` specifier. This option was deprecated in the 2.2.4 release and will be changed or removed in a future release.

`-nosnap`

Specifies that snapshots are not taken of groups that are switched from secondary to primary. Additionally, existing snapshots are not deleted if groups are switched from primary to secondary.

`-stopgroups`

Specifies that groups are stopped before running the indicated `reverse` or `restore` specifiers.

`-local`

When issuing the command with the `reverse` specifier, only the group's direction is changed on the system where the command is issued.

`-natural`

When issuing the command with the `reverse` specifier, only the natural direction of the groups is reversed, leaving the current direction unchanged.

`-current`

When issuing the `setrcopygroup` command with the `reverse` subcommand, only the current direction of the groups is reversed.

SPECIFIERS

`<policy>`

Specifies the policy to assign to the group. This specifier can only be used with the `pol` subcommand. Valid policies are:

`fail_wrt_on_err`

Specifies that if Remote Copy is started for the volume group and a write to the secondary system fails, then an I/O error is returned to the host.

`no_fail_wrt_on_err`

Specifies that if Remote Copy is started for the volume group and a write to the secondary system fails, then the Remote Copy operation is stopped and an I/O error is not returned to the host (default).

`auto_recover`

Specifies that if the Remote Copy is stopped as a result of the Remote Copy links going down, the group is restarted automatically after the links come back up.

`no_auto_recover`

Specifies that if the Remote Copy is stopped as a result of the Remote Copy links going down, the group must be restarted manually after the links come back up (default).

`over_per_alert`

If a synchronization of a periodic Remote Copy group takes longer to complete than its synchronization period then an alert will be generated. This is the default behavior.

`no_over_per_alert`

If a synchronization of a periodic Remote Copy group takes longer to complete than its synchronization period then an alert will not be generated.

If no policy is specified, the `no_fail_wrt_on_err` and `no_auto_recover` policies are implemented by default.



NOTE: When issuing the `setrcopygroup <dr_operation>` command, either the `<group_name>` specifier or the `<target_name>` specifier must be specified.

`<dr_operation>`

Specifies the operation of the group(s). Valid operations are:

`reverse`

Changes the natural and current direction of all specified groups. The operation is mirrored resulting in a direction change on both systems.



NOTE: The `reverse` specifier is not to be used as part of the normal disaster recovery process.

`failover`

Changes secondary volume groups to primary volume groups on the active system in the event of a server failure.

`recover`

Used for groups on which the `failover` operation has already been run. Changes matching primary volume groups on the backup system to secondary volume groups and then starts and synchronizes all groups.

`restore`

Used on groups on which the `recover` operation has already been run. Returns all groups to their natural direction and starts them.

`<group_name>`

Specifies the name of the volume group whose policy is set, or whose target direction is switched.

`<target_name>`

Specifies the target name for the target definition created with the `creatercopytarget` command.

<mode_value>

Specifies the mode, `sync` or `periodic`, to which the group is set. This specifier can only be used with the `mode` subcommand.

<period_value>`s|m|h|d`

Specifies the time period in units of seconds (`s`), minutes (`m`), hours (`h`), or days (`d`), for automatic resynchronization (e.g. `14h` for 14 hours). The time must be longer than or equal to five minutes and not more than one year in duration, or set to zero to indicate that no period should be used. This specifier can only be used with the `period` subcommand.

RESTRICTIONS

- Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.
- The period can be set only for groups whose mode is asynchronous periodic (see [creatercopygroup](#) on page 11.40).

EXAMPLES

The following example sets the group policy for `Group1`:

```
cli% setrcopygroup pol fail_wrt_on_err Group1
```

The following example reverses the current direction of secondary group `Group1` so that I/O might be applied to the group after disaster recovery:

```
cli% setrcopygroup failover Group1.r121
```

The following example sets `Group1` and its target group `Group1.r<sysID>` to asynchronous periodic mode and specifies that they be automatically synchronized every 30 seconds:

```
cli% setrcopygroup period 30s Group1.r<sysID> Group1
```

NOTES

- There is no default resynchronization period. For groups whose mode is asynchronous periodic, you must specify a resynchronization period using `setrcopygroup period <period_value>` or resynchronizations does not automatically take place.
- The minimum interval for periodic resynchronizations is five minutes.

- If the `mirror_config` policy is set for this group's target and the group is a primary group, then the `setrcopygroup` command is mirrored to the target when the `period` and `pol` subcommands are used.
- Use the `-nosnap` option when the primary server has failed or where the disks are ruined or in an unknown state. For example, an uncontrolled shutdown can result in loss of data. If you suspect that the primary volumes are not in a known good state, you should use this option to force a FULL RESYNC when the primary system is restored.
- The `-nosnap` option can be used when making a secondary group take over as the primary after a disaster takes down the primary (`setrcopygroup failover -nosnap...`). This option indicates that no incremental resynchronization of the primary group is possible while the primary system is coming back online. Without this option, a snapshot is taken when the secondary server takes over as the primary. That snapshot is used to do an INCREMENTAL synchronization of the primary after it is restored. This assumes that there was no loss of data in the primary volumes when the primary server went down.

COMMAND

setrcopytarget

DESCRIPTION

The `setrcopytarget` command sets the name, policies, and throughput of a target definition.

SYNTAX

The syntax for the `setrcopytarget` command can be one of the following:

- `setrcopytarget pol <policy> <target_name>`
- `setrcopytarget name <new_name> <target_name>`
- `setrcopytarget tput <tput_value> <target_name>`
- `setrcopytarget tunelinks <bandwidth> <latency> <target_name>`

AUTHORITY

Edit



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`pol`

Sets the policy for the specified target using the `<policy>` specifier.

`name`

Changes the name of the indicated target using the `<new_name>` specifier.

`tput`

Sets a maximum throughput value for the target's links using the `<tput_value>` specifier.

`tunelinks`

Adjust performance values for the target's links using the `<bandwidth>` and `<latency>` specifiers.

OPTIONS

None.

SPECIFIERS

<target_name>

Specifies the target name for the target definition previously created with the `creatercopytarget` command.

<policy>

This specifier can only be used with the `pol` subcommand. The policy can be one of the following:

`mirror_config|no_mirror_config`

Specifies that all configuration commands (`creatercopygroup`, `removercopygroup`, `admitrcopyvv`, `dismissrcopyvv`, `setrcopygroup pol/period`, `startrcopygroup`, and `stoprcopygroup`) involving the specified target are duplicated (`mirror_config`) or not duplicated (`no_mirror_config`). If not specified, all configuration commands are duplicated.

<new_name>

The new name for the indicated target. This specifier can only be used with the `name` subcommand.

<tput_vlaue>

Specifies the maximum throughput for this target's links, and is used to limit the total throughput of the link. You can optionally specify `g` or `G` (gigabytes), `m` or `M` (megabytes), or `k` or `K` (kilobytes) following the throughput value to indicate size (with no space between the specified value and size type). The default is kilobytes. This specifier can only be used with the `tput` subcommand.

<bandwidth>

The measured bandwidth of the connection to the target, specified in kilobytes (KB) per second. This specifier can only be used with the `tunelinks` subcommand.

<latency>

The measured round-trip latency of the connection to the target, specified in milliseconds (ms). This specifier can only be used with the `tunelinks` subcommand.

RESTRICTIONS

- Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.
- If the `mirror_config` policy is set and the `setrcopytarget` command is issued with the `pol` subcommand, the duplicated configuration commands cannot be issued on the secondary. Doing so results in an error.
- The `name` and `tput` subcommands cannot be used on a target with started groups.
- There must be an active connection between the systems in the Remote Copy pair to issue commands on the primary to be mirrored to the secondary. If there is no connection, the commands return an error.

EXAMPLES

The following example turns off configuration mirroring from InServ1 to InServ2, where InServ2_out is a secondary target on InServ1 that points at InServ2:

```
On InServ1:  
cli% setrcopytarget pol no_mirror_config InServ2_out
```

NOTES

- The `setrcopytarget` command requires the groups associated with it be stopped prior to using the following options:
 - ◆ `setrcopytarget name <new_name> <target_name>`
 - ◆ `setrcopytarget tput <throughput> <target_name>`
- The `setrcopytarget` command with the following arguments can be run without bringing down its Remote Copy groups:
- ◆ `setrcopytarget pol <policy> <target_name>`
 - ◆ `setrcopytarget tunelinks <bandwidth> <latency> <target_name>`
- Under normal operating conditions the `mirror_config` policy should never be changed to `no_mirror_config`. This policy option is included only as a method to correct several unusual error conditions that might occur in the course of operation which result in a mismatch in configuration between the two sides of a Remote Copy pair. For instance, it is possible for a group to be created, or a volume to be added to a group, only on one side of the pair if the operation is interrupted by a network failure. In such cases it might be

necessary to temporarily change the policy to `no_mirror_config` in order to bring the configurations into alignment. After being corrected the `mirror_config` policy should be immediately restored. Such operations should generally only be undertaken on the advice of a 3PAR representative.

COMMAND

setsnmppw

DESCRIPTION

The `setsnmppw` command allows a user to update SNMP access community string passwords. The SNMP password is required for the system manager to send requests to the SNMP agent.

SYNTAX

`setsnmppw [options] <password>`

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-rw` | `-r` | `-w`

Specifies that the read/write (`-rw`), read-only (`-r`), or write-only (`-w`) community password is changed. If not specified, the read/write password is changed.

SPECIFIERS

`<password>`

Specifies the new user-defined password using up to 50 alphanumeric characters.

RESTRICTIONS

None.

EXAMPLES

The following example changes the read/write SNMP community string password to `newpassword1`:

```
cli% setsnmppw newpassword1
```

The following example changes the read-only SNMP password to `newpassword2` by specifying the `-r` option on the command line:

```
cli% setsnmppw -r newpassword2
```

The following example changes the write-only SNMP password to `newpassword3` by specifying the `-w` option on the command line:

```
cli% setsnmppw -w newpassword3
```

NOTES

- The default initial read/write password is `public`.
- If the read-only or write-only passwords do not exist, they are created.
- Verify SNMP passwords by issuing the `showsnmppw` command. See [showsnmppw](#) on page 22.128 for more information.

COMMAND

setsshkey

DESCRIPTION

The `setsshkey` command sets the SSH public key for a user.

The user will be prompted to provide the SSH public key. To finish entering the public key, press enter on a blank line. The key must have been generated using the `ssh-keygen` utility. The public key is contained in the user-defined file named with `.pub` extension. The user can open this file with an ASCII editor to copy the key and paste it. After setting the SSH public key on the InServ Storage Server, the user can use the corresponding private key to log on without a password. This new key replaces the existing key if any.

The maximum length of the key is 4096 bits.

LDAP users are only allowed to set an SSH key if the `setauthparam` command has been used to set the `allow-ssh-key` parameter to 1. When an LDAP user runs the `setsshkey` command, the user's privilege level is recorded and is assigned when the user logs in using the key. Changes in the group-to-privilege mappings set with the `setauthparam` command or changes in the user's data in the LDAP server have no effect as long as the user has an SSH key. Removing the user's SSH key forces a new privilege to be determined at the user's next login.

SYNTAX

setsshkey

AUTHORITY

Service

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the setting of a user's SSH public key:

```
cli% setsshkey  
  
<sshkey from file.pub>
```

NOTES

- The SSH public key must have been generated by using the SSH-Kegen utility. The public key is contained in your user-specified file name with a `.pub` extension. This file can be opened using an ASCII editor.
- Issuing the `setsshkey` command results in the system prompting for your SSH public key. Copy and paste the key using the aforementioned ASCII editor on the command line and then press ENTER.
- After setting the SSH public key on the system, use the corresponding private key to log on without a password.

COMMAND

setstatch

DESCRIPTION

The `setstatch` command starts and stops the statistics collection mode for chunklets.

SYNTAX

`setstatch start|stop <LD_name> <chunklet_num>`

AUTHORITY

Edit

SUBCOMMANDS

`start|stop`

Specifies that the collection of statistics is either started or stopped for the specified logical disk and chunklet.

OPTIONS

None.

SPECIFIERS

`<LD_name>`

Specifies the name of the logical disk in which the chunklet to be configured resides.

`<chunklet_num>`

Specifies the chunklet that is configured using the `setstatch` command.

RESTRICTIONS

None.

EXAMPLES

The following example displays the start of statistics collection on chunklet 0 of logical disk test:

```
cli% setstatch start test 0
```

NOTES

After the statistic collection mode for the chunklet is set, you can then use either the `histch` command ([page 15.2](#)) or the `statch` command ([page 25.2](#)) to view the chunklet's statistics.

COMMAND

setstatpdch

DESCRIPTION

The `setstatpdch` command sets the statistics collection mode for all in-use chunklets on a physical disk.

SYNTAX

`setstatpdch start|stop <PD_ID>`

AUTHORITY

Edit

SUBCOMMANDS

`start|stop`

Specifies that the collection of statistics is either started or stopped for chunklets on the specified physical disk used by logical disks.

OPTIONS

None.

SPECIFIERS

`<PD_ID>`

Specifies the physical disk ID.

RESTRICTIONS

None.

EXAMPLES

The following example displays the start of statistics collection on all physical disk chunklets of physical disk 0:

```
cli% setstatpdch start 0
```

NOTES

After the statistic collection mode for the chunklet is set, you can then use either the `histch` command ([page 15.2](#)) or the `statch` command ([page 25.2](#)) to view the chunklet's statistics.

COMMAND

setsys

DESCRIPTION

The `setsys` command sets the properties of the system, and includes options to annotate a system with descriptor information such as physical location, owner, contact information, and so on. The command also enables you to set system-wide parameters such as the raw space alert.

SYNTAX

```
setsys [options]  
setsys <parameter>
```

AUTHORITY

Super, Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

The following option is designed for changing the name of the system:

`-name <systemname>`

Specifies the new name of the system up to 31 characters in length.

The following options allow the annotation of the system with descriptor information:

`-loc <location>`

Specifies the location of the system.

`-owner <owner>`

Specifies the owner of the system.

`-contact <contact>`

Specifies the contact information for the system.

`-comment <comment>`

Specifies any additional information for the system.

SPECIFIERS

The following parameters can be configured on the system and are issued for the <parameter> specifier:

RawSpaceAlertFC <value>

Sets the user configurable space alert threshold (100 to 100000) for Fibre Channel type drives. When the total space on the available chunklets (both clean and unclean) for the specified drive type falls below the specified value, the alert is posted. A value of 0 will disable the alert.

RawSpaceAlertNL <value>

Performs the same function as RawSpaceAlertFC, but should be used for Nearline type drives.

RemoteSyslog <value>

Enables or disables sending events as syslog messages to a remote system. A value of 0 disables the message, and a value of 1 enables the message. syslog messages are sent with a facility user and with event severities mapped to syslog levels such as:

Table 21-5. Event Log Levels

Event Severity	syslog Level
fatal	alert
critical	alert
major	crit
minor	err
degraded	warning
info	info

RemoteSyslogHost <value>

Sets the IP address of the system to which events will be sent as syslog messages. The value must be a valid IP address.

`SparingAlgorithm <value>`

Sets the sparing algorithm used by the `admithw` command. Valid values are `Default`, `Minimal`, `Maximal`, and `Custom`.

`MgmtOldPorts enable|disable`

Enable or disable listening on the old management ports 2540, and 2550 for SSL. The server now listens on ports 5782, and 5783 for SSL. Default ports 2540 and 2550 were deprecated in the 2.2.4 release and will be changed in a future release. By default, the server also listens on the old ports unless they are disabled using this parameter.



NOTE: The server must be restarted for changes made with the `MgmtOldPorts` parameter to take effect.

RESTRICTIONS

None.

EXAMPLES

The following example displays setting a raw space alert of 800 gigabytes:

```
cli% setsys RawSpaceAlert 800
cli% showsys -param
System parameters (from configured settings):
```

Parameter	Value
RawSpaceAlert	800

NOTES

Use the `showsys -param` command to see the current raw space alert setting (see [showsys](#) on page 22.139).

COMMAND

setsysmgr

DESCRIPTION

The `setsysmgr` command sets the system manager startup state.



CAUTION: Issuing the `setsysmgr` command can potentially remove the entire state of the system causing data loss.

SYNTAX

The syntax of the `setsysmgr` command can be one of the following:

- `setsysmgr [-f] wipe <system_name> [<system_ID>]`
- `setsysmgr [-f] tocgen [<toc_gen_number> [<disk_quorum>]]`
- `setsysmgr [-f] force_iderecovery`
- `setsysmgr [-f] force_idewipe`

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`wipe <system_name> [<system_ID>]`

Requests that the specified system be started in the new system state, using the specified system name that is limited to a maximum of 31 characters with no spaces. The system ID can also be specified as the system ID for the table of contents. If this subcommand is not used, then the `tocgen` subcommand must be used.

`tocgen <toc_gen_number> [<disk_quorum>]`

Specifies that the system is to be started with the specified table of contents generation number. If the table of contents generation number (`tocgen_number`) is specified, then the disk quorum can also be specified. If this subcommand is not used, then the `wipe` subcommand must be used.

`force_iderecovery`

Specifies that the system starts the recovery process from the IDE disk even if all virtual volumes have not been started.



CAUTION: Issuing the `setsysmgr force_idewipe` command can result in data loss.

`force_idewipe`

Specifies that the system wipes the IDE powerfail partition. The system is shutdown and restarted, during which time all logical disks and virtual volumes are checked.

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

None.

RESTRICTIONS

Use this command only when the system cannot start up normally.

EXAMPLES

The following example starts system `mysystem` in the new system state:

```
cli% setsysmgr wipe mysystem systemid
```

The following example starts the system with the table of contents generation number of 42956, where 91 is the highest disk quorum displayed:

```
cli% setsysmgr tocgen 42956 91
```

The following example displays the start of a system's recovery process from its IDE disk:

```
cli% setsysmgr force_iderecovery
```

NOTES

- If the `wipe` subcommand is specified, all system data and configuration information, including customer data and virtual volume layout, are destroyed.
- If the `force_iderecovery` subcommand is specified, the system can delete data for some of the unstarted virtual volumes. The system can run the `checkvv` and `checkld` commands to make the virtual volumes and logical disks consistent, thereby resulting in a possible data loss.

COMMAND

settemplate

DESCRIPTION

The `settemplate` command modifies the properties of existing templates.

SYNTAX

```
settemplate <option_value>... [option <arg>] <template_name>
```

AUTHORITY

Super



NOTE: You need access to all domains in order to run this command.

OPTION

`-remove <option>...`

Indicates that the option(s) that follow `-remove` are removed from the existing template. When specifying an option for removal, do not specify the option's value. For valid options, refer to [createtemplate](#) on page 11.48.

SPECIFIERS

`<option_value>...`

Indicates the specified options and their values (if any) are added to an existing template. The specified option replaces the existing option in the template. For valid options, refer to [createtemplate](#) on page 11.48.

`<template_name>`

Specifies the name of the template to be modified, using up to 31 characters.

RESTRICTIONS

- The `-desc` option cannot be removed from a template (it can be changed to an empty string).
- The `-nrw` and `-nro` options cannot be removed from a template. These options can only be replaced by specifying either `-nrw` or `-nro` before the `-remove` option.

EXAMPLES

- The following example displays template `vvtemp1` modified to support the availability of data should a drive magazine fail (`mag`) using the `stale_ss` policy:

```
cli% settemplate -ha mag -pol stale_ss vvtemp1
```

- In the following example, the `-nrw` and `-ha mag` options are added to the template `templatel`, and the `-t` option is removed:

```
cli% settemplate -nrw -ha mag -remove -t templatel
```

NOTES

- All options available for the `createald`, `createaldvv`, `createcpg`, and `createtpvv` commands can be used with the `settemplate` command to modify an existing template.
- Options preceded with `-remove` are removed from an existing template.
- When adding options to a template, specify the option flag and its value (if any).
- When removing options from a template, specify the option flag only.

COMMAND

setuser

DESCRIPTION

The `setuser` command sets your user properties.

SYNTAX

setuser [options] <user>

AUTHORITY

Super, Edit, Browse

OPTIONS

-f

Specifies that the command is forced. No confirmation is requested before executing the command.

-adddomain <domain>:<privilege>[,<domain>:<privilege>...]

Adds a specified user (<user>) to the specified domain (<domain>) at the specified privilege level (<privilege>). Permitted values for <priv> are Super, Edit, Browse and Service.

-rmdomain <domain_name_or_pattern>[,<domain_name_or_pattern>...]

Remove the user from each domain with a name that matches one or more of the <domain_name_or_pattern> options.

-defaultdomain <domain>

Changes the default domain of the user to a specified domain. You must already have permission set in the domain. Specify the `-unset` option to specify no default domain. The Browse and Edit authorities for this command and option can be used by any user with their own user name.

SPECIFIERS

<user>

Specifies the name of the user.

RESTRICTIONS

The `-adddomain` and `-rmdomain` options cannot be used on a user that is currently logged in. Existing sessions can be terminated with the `removeuserconn` command.

EXAMPLES

In the following example, user `3paruser` is permitted `edit` level privileges in the domain `Engineering`:

```
cli% setuser -adddomain Engineering:edit 3paruser
```

NOTES

None.

COMMAND

setuseracl

DESCRIPTION

The `setuseracl` command sets the access control list (ACL).

SYNTAX

```
setuseracl <user_name> <operation> [<name_or_pattern>]...
```

AUTHORITY

Edit

OPTIONS

None.

SPECIFIERS

<user_name>

Specifies the name of the user whose ACL is being set.

<operation>

Specifies the operation (command) for which the ACL is being defined. Currently, the only value accepted is `updatevv`, which updates a snapshot with a new snapshot. Refer to [updatevv](#) on page 29.4 for details.

[<name_or_pattern>]...

Specifies a list of names or patterns of objects on which the operation (as specified by the <operation> argument) is performed. The object type is dependent on the specified operation. For example, the objects or names specified for the `updatevv` operation are virtual volume names. This specifier is not required. If this specifier is not included, any existing ACL for the user and operation is removed.

RESTRICTIONS

None.

EXAMPLES

The following example sets the ACL for user `testuser1` and allows `testuser1` to update the snapshot virtual volumes of virtual volumes `vv1` and `vv2`.

```
cli% setuseracl testuser1 updatevv vv1 vv2
```

NOTES

None.

COMMAND

setvv

DESCRIPTION

The `setvv` command changes the properties associated with a virtual volume. Use the `setvv` command to modify volume names, volume policies, allocation warning and limit levels, and the volume's controlling common provisioning group (CPG).

SYNTAX

```
setvv [options <arg>] <VV_name|pattern>...
```

AUTHORITY

Edit

OPTIONS

At least one of the following options must be specified:

`-clrrsv`

Specifies that all reservation keys (i.e. registrations) and all persistent reservations on the virtual volume are cleared.

`-name <new_name>`

Specifies that the name of the virtual volume be changed to a new name (as indicated by the `<new_name>` specifier) that uses up to 31 characters.

`-pol <policy>[,<pol>...]`

Specifies the policy is implemented by a virtual volume. Valid policies are as follows:

`stale_ss`

Specifies that invalid (stale) snapshot volumes are permitted. Failures to update snapshot data occur when there is not sufficient administration or snapshot space. Failures to update snapshot data does not affect the write to the base volume. However, the snapshot is considered invalid.

`no_stale_ss`

Specifies that stale snapshot volumes are not permitted. A failure to update a snapshot is considered a failure to write to the base volume. Existing stale snapshots remain stale.

`no_one_host`

This policy should only be used when exporting a virtual volume to multiple hosts for use by a cluster-aware application, or when “port presents” VLUNs are used. This is the default policy setting.

`tp_bzero`

Specifies that if a host write results in the allocation of a new data page that is only partially filled by the host write, then a zero-fill is performed on the unwritten portion of the data page to ensure that the host cannot read data from deleted volumes or snapshot. The default allocation page size is 16 KB.

`no_tp_bzero`

Specifies that the zero-fill operation is bypassed on the allocation of partially written data pages.

Multiple policies can be specified and are separated with commas. If a policy is not specified, the policy defaults to `stale_ss`.

The following options can only be used on thinly provisioned virtual volumes:

`-usr_aw <percent>`

This option returns a user space allocation warning. It generates a warning alert when the user space of the TPVV exceeds the specified percentage of the virtual volume size.

`-usr_al <percent>`

This option returns the user space allocation limit. The user space of the TPVV is prevented from growing beyond the indicated percentage of the virtual volume size. After this size is reached, any new writes to the virtual volume will fail.

The following options can only be used on fully provisioned volumes:

`-usr_cpg <user_CPG>`

Specifies that the volume user space that is to be provisioned from the specified CPG. This option moves all the logical disks currently contained in the user space for these volumes into the CPG. This is permitted only when none of the logical disks are shared with other volumes that are not specified with this option. If the `<usr_CPG>` specifier is specified as `" "`, the volume user space is no longer provisioned from a CPG and the existing user space logical disks will be removed from the CPG. This is permitted only when the existing user's logical disks are exclusively being used by the volumes specified with this option.

`-snp_cpg <snp_cpg>`

Specifies that the volume snapshot space is to be provisioned from the specified CPG. This option moves all the logical disks currently contained in the snapshot space for these volumes into the CPG. This is permitted only when none of the logical disks are shared with other volumes that are not specified in this option. If the `<snp_CPG>` specifier is specified as " ", the volume snapshot space is longer provisioned from a CPG and the existing snapshot space logical disks are removed from the CPG. This is permitted only when the existing snapshot logical disks are exclusively used by the volumes specified in this option.

`-snp_aw <percent>`

Indicates a snapshot space allocation warning. Through this option you can generate a warning alert when the snapshot space of the virtual volume exceeds the indicated percentage of the virtual volume size.

`-snp_al <percent>`

Indicates a snapshot space allocation limit. The snapshot space of the virtual volume is prevented from growing beyond the indicated percentage of the virtual volume size.

`-cpg <CPG_name>`

Specifies that the snapshot data space and snapshot administration space are provisioned from the indicated CPG.

`-aw <percent>`

Specifies the allocation warning threshold of the CPG. When the snapshot data space of the virtual volume exceeds the specified percentage of the virtual volume size, an alert is generated.

`-al <percent>`

Specifies the allocation limit threshold of the CPG. The snapshot data space is prevented from growing beyond the specified percentage of the virtual volume size.

SPECIFIERS

`<VV_name|pattern>...`

Specifies the virtual volume name or all virtual volumes that match the pattern specified, using up to 31 characters. The patterns are glob-style patterns (see Help on sub, or globpat). Valid characters include alphanumeric characters, periods, dashes, and underscores.

RESTRICTIONS

At least one option must be specified.

EXAMPLES

The following example sets the policy of virtual volume `vv1` to `no_stale_ss`.

```
cli% setvv -pol no_stale_ss vv1
```

The following example adds volume `vv1` to an existing CPG named `CPG1`.

```
cli% setvv -cpg CPG1 vv1
```

The following example demonstrates renaming virtual volumes:

```
cli% showvv
Id  Name   Type CopyOf  BsId Rd  State   AdmMB  SnapMB  userMB
0  admin  Base  ---    0  RW  started    0      0  10240
1  newtest Base  ---    1  RW  started    0      0  1024
-----
2      total LD                0      0  11264
   total virtual              -      -  11264
```

Use the command to change the name:

```
cli% setvv -name test newtest
cli% showvv
Id  Name   Type CopyOf  BsId Rd  State   AdmMB  SnapMB  userMB
0  admin  Base  ---    0  RW  started    0      0  10240
1  test  Base  ---    1  RW  started    0      0  1024
-----
2      total LD                0      0  11264
   total virtual              -      -  11264
```

NOTES

- To view policies assigned to the system's virtual volumes, issue the `showvv -p` command. See [showvv](#) on page 22.169 for more information.
- It is not possible to rename a virtual volume that is already associated with a Remote Copy group.
- Changing the CPG for a TPVV is not allowed.

22

Show Commands

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COMMAND

`showalert`

DESCRIPTION

The `showalert` command displays the status of system alerts. When issued without options, all alerts are displayed.

SYNTAX

`showalert [options]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-n|-a|-f|-all`

`-n`

Specifies that only new alerts are displayed.

`-a`

Specifies that only acknowledged alerts are displayed.

`-f`

Specifies that only fixed alerts are displayed.

`-d`

Specifies that detailed information is displayed.

`-all`

Specifies that all alerts are displayed.

SPECIFIERS

None.

RESTRICTIONS

Without any options, the `showalert` command displays all alerts in the `New` state.

EXAMPLES

The following example displays new alerts on a system:

```
cli% showalert -n
Id       : 1
State    : New
Time     : Mon Apr 10 19:40:42 PDT 2007
Severity : Degraded
Type     : PR transition
Component : persistent_repository:0
Message  : The PR is currently getting data from the local disk on node 1, not the
admin volume. Previously recorded alerts will not be visible till the PR transitions
to the admin volume.

Id       : 2
State    : New
Time     : Mon Apr 10 19:46:06 PDT 2007
Severity : Major
Type     : System manager cannot startup
Component : system_manager
Message  : Cannot reach TOC quorum. Use 'setsysmgr' to set system manager startup
state.

2 alerts
```

NOTES

- Set the status of alerts by issuing the `setalert` command. See [setalert](#) on page 21.3 for more information.
- Alerts can be removed by issuing the `removealert` command. See [removealert](#) on page 19.3 for more information.

COMMAND

showauthparam

DESCRIPTION

The showauthparam command shows authentication parameters.

SYNTAX

showauthparam

AUTHORITY

Super

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLE

The following is example output from the showauthparam command:

```
cli% showauthparam
Param                -----Value-----
ldap-server          xxx.xxx.xx.xx
ldap-server-hn       domaincontroller.work.com
binding              sasl
sasl-mechanism        GSSAPI
kerberos-realm       NTDOM1.work.COM
accounts-dn          OU=Users,DC=work,DC=com
account-obj          user
account-name-attr    sAMAccountName
memberof-attr        memberOf
edit-map              CN=Software,CN=Users,DC=work,DC=com
browse-map            CN=Eng,CN=Users,DC=work,DC=com
domain-name-attr     description
group-obj             group
domain-name-prefix   !InServDomain=
```


NOTES

None.

COMMAND

showbattery

DESCRIPTION

The `showbattery` command displays battery status information including serial number, expiration date, battery life, and so on, which could be helpful when determining battery maintenance schedules.

SYNTAX

showbattery [options]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-d

Specifies that detailed battery information, including battery test information, serial numbers, and expiration dates, is displayed.

-log|-i

Specifies either the battery test log information (-log), or the battery inventory information (-i).

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays battery status information:

```
cli% showbattery
Node PS Bat Serial --State--- ChrgLvl(%) -ExpDate-- Expired Testing
  0  0  0 FFFFFFFF OK          100 05/15/2007 No      No
  0  1  0 FFFFFFFF OK          100 05/15/2007 No      No
  1  0  0 --      NotPresent   --  --      No      No
  1  1  0 --      NotPresent   --  --      No      No
```

The columns in the previous example are identified as follows:

- Node. The controller node number.
- PS. The power supply number.
- Bat. The battery ID.
- Serial. The battery serial number.
- State. The current status of the battery. Battery states can be as follows:
 - ◆ --. Cannot determine the battery state.
 - ◆ NotPresent. Battery is missing.
 - ◆ OK. Battery is operating normally.
 - ◆ Failed. Battery is operating abnormally.
 - ◆ MaxLifeLow. Maximum battery life is low (less than 12 minutes).
- ChgLvl. Percentage of battery charge status for the node.
- ExpDate. The expiration date of the battery.
- Expired. Indicates whether expired batteries are connected to the power supply.
- Testing. Indicates whether a battery test is in progress. When a battery test is in progress, the batteries cannot be counted so the number of batteries shown is a cached value.

The following example displays detailed battery information:

```
cli% showbattery -d
-----Node 0 PS 0 Battery 0-----
Node ID           : 0
Power Supply ID   : 0
Battery ID        : 0
Manufacturer      : MAG
Model             : 0800-0016-50.0B
Serial Number     : 70315366
State             : OK
Charge State      : FullyCharged
Charge Level(%)   : 100
Max Battery Life(mins) : 25
Expired           : No
Test in Progress  : No
Expiration Date   : 2010-07-17 13:00:00 PD
...
```

The following example displays the inventory information for the battery using the `showbattery -i` command:

```
cli% showbattery -i
Node PS Bat -Manufacturer- -Model- -Serial-
  0  0  0  --              --      FFFFFFFF
  0  1  0  --              --      FFFFFFFF
  1  0  0  --              --      --
  1  1  0  --              --      --
```

- Node. The controller node number.
- PS. The power supply number.
- Manufacturer. The manufacturer of the battery.
- Model. The battery model.
- Serial. Indicates the serial number of the battery.

The following example displays the battery test log information using the `showbattery -log` command:

```
cli% showbattery -log
Node PS Bat Test Result Dur(mins) -----Time-----
  0  0  0    0 Passed      1 Fri Jan 19 13:16:51 PST 2007
  0  0  0    1 Passed      1 Fri Feb 02 13:18:51 PST 2007
  0  0  0    2 Passed      1 Tue Feb 20 12:41:06 PST 2007
  0  0  0    3 Passed      1 Tue Mar 06 12:42:07 PST 2007
  0  0  0    4 Passed      1 Tue Mar 20 13:43:58 PDT 2007
  0  0  0    5 Passed      1 Tue Apr 03 13:45:35 PDT 2007
  0  0  0    6 Passed      1 Tue Apr 17 13:47:07 PDT 2007
  0  0  0    7 Passed      1 Tue May 01 13:49:05 PDT 2007
  0  0  0    8 Passed      1 Tue May 15 13:50:10 PDT 2007
  0  0  0    9 Passed      1 Tue May 29 13:51:36 PDT 2007
  1  1  0    0 Passed      1 Fri Jan 19 14:17:44 PST 2007
  1  1  0    1 Passed      1 Fri Feb 02 14:19:45 PST 2007
  1  1  0    2 Passed      1 Tue Feb 20 13:42:02 PST 2007
  1  1  0    3 Passed      1 Tue Mar 06 13:44:02 PST 2007
  1  1  0    4 Passed      1 Tue Mar 20 14:45:53 PDT 2007
  1  1  0    5 Passed      1 Tue Apr 03 14:47:24 PDT 2007
  1  1  0    6 Passed      1 Tue Apr 17 14:48:56 PDT 2007
  1  1  0    7 Passed      1 Tue May 01 14:50:54 PDT 2007
  1  1  0    8 Passed      1 Tue May 15 14:51:59 PDT 2007
  1  1  0    9 Passed      1 Tue May 29 14:53:25 PDT 2007
```

- **Node.** The controller node number.
- **PS.** The power supply number.
- **Bat.** The battery ID.
- **Test.** The current status of the battery.
- **Result.** The battery status, shows as passed or failed.
- **Dur (mins).** Indicates the length of time for the results to return.
- **Time.** Indicates the time of the last battery test.

NOTES

- Battery information is set by issuing the `setbattery` command. See [setbattery](#) on page 21.12 for more information.
- For the E-Class storage servers, the Power Supply 0's primary node is 0 and its secondary node is 1. The Power Supply 1's primary node is 1 and its secondary node is 0. The primary node can read and modify the power supply's properties. The secondary node can only read the power supply's properties. Therefore, for the E-Class, with the `-old` option, the battery information for Node 0 Power Supply 0 is the same as the battery information for Node 1 Power Supply 0. The battery information for Node 1 Power Supply 1 is the same as the battery information for Node 0 Power Supply 1.

COMMAND

showblock

DESCRIPTION

The `showblock` command displays block mapping information for virtual volumes, logical disks, and physical disks.

AUTHORITY

Super, Service, Edit, Browse

SYNTAX

`showblock [options <arg>] <dev> <block> [<eblock>]`

OPTIONS

`-d`

Specifies that detailed information is displayed for the specified device and block.

SPECIFIERS

`<dev>`

The `<dev>` specifier is specified as one of the following arguments:

`vv <VV_name> usr|sd|sa`

Specifies the virtual volume name and the area (`usr`, `sd`, or `sa`) of that volume for the block mapping information to be displayed.

`ld <LD_name>`

Specifies the logical disk name, using up to 31 characters.

`pd <PD_ID>`

Specifies the ID of the physical disk.

`<block>`

Specifies the 512 byte block number on the specified device.

`[<eblock>]`

Specifies an end range when used with the `<block>` specifier. Additional mapping for blocks at the start of each device mapping boundary for the range indicated by `<block>` and `<eblock>` is displayed. This specifier is optional.

RESTRICTIONS

None.

EXAMPLES

The following example displays block mapping information for block 0 in the user space of virtual volume admin:

```
cli% showblock vv admin usr 0
      VVname Spc      VVBlock      LDname      LDBlock PDId Chnk      PDblock
      admin usr 0x00000000      admin.usr.0 0x00000000      88      0 0x00080000
      =      =      =      =      0x00000000      58      0 0x00080000
```

The following example displays detailed block mapping information for block 0 in the user space of virtual volume admin:

```
cli% showblock -d vv admin usr 0
VV/LD      Name      Block      Region
VV usr:      admin 0x00000000 0x00000000-0x0007FFFF (0-256MB)
LD      :      admin.usr.0 0x00000000 0x00000000-0x0007FFFF (0-256MB)

PD Chnk      PDStep      Block      LDStep
88      0 0x00080000-0x000801FF 0x00080000 0x00000000-0x000001FF
58      0 0x00080000-0x000801FF 0x00080000 0x00000000-0x000001FF
```

The following example displays block mapping information from blocks 0x100 through 0x400 in the user space of virtual volume admin:

```
cli% showblock vv admin usr 0x100 0x400
      VVname Spc      VVBlock      LDname      LDBlock PDId Chnk      PDblock
      admin usr 0x00000100      admin.usr.0 0x00000100      88      0 0x00080100
      =      =      =      =      0x00000100      58      0 0x00080100
      admin usr 0x00000200      admin.usr.0 0x00000200      87      0 0x00080000
      =      =      =      =      0x00000200      56      0 0x00080000
      admin usr 0x00000400      admin.usr.0 0x00000400      70      1 0x00100000
      =      =      =      =      0x00000400      54      0 0x00080000
```

The following example displays detailed block mapping information from blocks 0x100 through 0x400 in the user space of virtual volume admin:

```
cli% showblock -d vv admin usr 0x100 0x400
```

VV/LD	Name	Block	Region
VV usr:	admin	0x00000100	0x00000000-0x0007FFFF (0-256MB)
LD :	admin.usr.0	0x00000100	0x00000000-0x0007FFFF (0-256MB)

PD Chnk	PDStep	Block	LDStep
88	0	0x00080000-0x000801FF	0x00000000-0x000001FF
58	0	0x00080000-0x000801FF	0x00000000-0x000001FF

VV/LD	Name	Block	Region
VV usr:	admin	0x00000200	0x00000000-0x0007FFFF (0-256MB)
LD :	admin.usr.0	0x00000200	0x00000000-0x0007FFFF (0-256MB)

PD Chnk	PDStep	Block	LDStep
87	0	0x00080000-0x000801FF	0x00000200-0x000003FF
56	0	0x00080000-0x000801FF	0x00000200-0x000003FF

VV/LD	Name	Block	Region
VV usr:	admin	0x00000400	0x00000000-0x0007FFFF (0-256MB)
LD :	admin.usr.0	0x00000400	0x00000000-0x0007FFFF (0-256MB)

PD Chnk	PDStep	Block	LDStep
70	1	0x00100000-0x001001FF	0x00000400-0x000005FF
54	0	0x00080000-0x000801FF	0x00000400-0x000005FF


```
cli% showblock -d ld admin.usr.1 0x100
```

VV/LD	Name	Block	Region
VV usr:	admin	0x00080100	0x00080000-0x000FFFFF (256-512MB)
LD :	admin.usr.1	0x00000100	0x00000000-0x0007FFFF (0-256MB)

PD Chnk	PDStep	Block	LDStep
65	1	0x00100000-0x001001FF	0x00000000-0x000001FF
59	0	0x00080000-0x000801FF	0x00000000-0x000001FF

NOTES

None.

COMMAND

showcage

DESCRIPTION

The `showcage` command displays information about drive cages.

SYNTAX

The syntax of the `showcage` command can be one of the following:

- `showcage [options] [-d] [<cagename>...]`
- `showcage [-sfp [-d|-ddm]] [<cagename>...]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d`

Specifies that more detailed information about the drive cage is displayed. If this option is not used, then only summary information about the drive cages is displayed.

`-sfp`

Specifies information about the SFP attached to a cage. Currently, only DC2 and DC4 cages support SFP.

`-ddm`

Specifies the SFP DDM information. This option can only be used with the `-sfp` option and cannot be used with the `-d` option.

`-e`

Displays error information.

`-c`

Specifies to use cached information. This option displays information faster because the cage does not need to be probed, however, some information might not be up-to-date without that probe.

SPECIFIERS

<cagename> . . .

Specifies a drive cage name for which information is displayed. This specifier can be repeated to display information for multiple cages. If no specifiers are used, the command defaults to displaying information about all cages in the system.

RESTRICTIONS

None.

EXAMPLES

The following examples display information for a single system's drive cages:

```
cli% showcage
```

Id	Name	LoopA	Pos.A	LoopB	Pos.B	Drives	Temp	RevA	RevB	Model	Side	
0	cage0	0:1:1	0	1:1:1	0	40	24-33	2.05	2.05	DC4	n/a	
1	cage1	0:1:2	0	1:1:2	0	24	26-32	2.05	2.05	DC2	0	
1	cage1	0:1:3	0	1:1:3	0	16	28-32	2.05	2.05	DC2	1	
2	cage2	0:1:4	0	1:1:4	0	16	33-36	04	04	DC3	n/a	

The columns in the previous example are identified as follows:

- **Id.** The cage number.
- **Name.** The name of the cage.
- **LoopA.** The position of the controller node port to which the cage's A port (the top port) is connected.
- **Pos . A.** Indicates how closely connected the cage's A port is to the controller node port. The value is 0 if the A port is non daisy chained to the node or 1 if daisy chained.
- **LoopB.** The position of the controller node port that is connected to the cage's B port.
- **Pos . B.** Indicates how closely connected the cage's B port is to the controller node port. The value is 0 if the B port is non daisy chained to the node or 1 if daisy chained.
- **Drives.** The number of physical disks in the drive cage.
- **Temp.** The range of current temperatures for the drives in the drive cage, in Celsius.
- **RevA.** The cage firmware version for side A of the drive cage.
- **RevB.** The cage firmware version for side B of the drive cage.

- **Model.** The model can be DC2, DC3, or DC4.
- **Side.** Specifies the right (1) or left (0) side of the drive cage.

Specifying the **-d** option provides more detailed information about the drive cages. See the following E-Class Storage Server example for **cage0**:

```
cli% showcage -d
Id  Name LoopA Pos.A LoopB Pos.B Drives  Temp RevA RevB Model Side
0  cage0 0:0:1    0 1:0:1    0      8 29-32  03  03  DC3  n/a

-----Cage detail info for cage0 -----
Position: ---
-----Midplane Info-----
VendorId,ProductId      3PARdata,DC3
Serial_Num  OPS45811C010719
Node_WWN    20000050CC010719
TempSensor_State      OK
TempSensor_Value      35
OpsPanel_State        OK
Audible_Alarm_State    Muted
ID_Switch              4
Cage_State             OK
Interface Board Info   LoopA   LoopB
Firmware_status Current Current
Product_Rev          03      03
IFC_State            OK      OK
ESH_State            OK      OK
Master_CPU           Yes     No
Loop_Map             valid   valid
Link_Speed           2Gbps   2Gbps
Port0_State          OK      OK
Port1_State          No_SFP  No_SFP
Port2_State          No_SFP  No_SFP
Port3_State          No_SFP  No_SFP

Power Supply Info State Fan State AC Model
ps0    OK   MedSpeed OK   --
ps1    OK   MedSpeed OK   --

-----Drive Info----- ----LoopA----- ----LoopB-----
Drive      NodeWWN State Temp(C) ALPA LoopState ALPA LoopState
0:0 20000011c60b0379 OK 32 0x88 OK 0x88 OK
3:0 20000011c60b18b4 OK 29 0x81 OK 0x81 OK
4:0 2000000c50c3560d OK 31 0x80 OK 0x80 OK
7:0 2000000c501fd935 OK 30 0x79 OK 0x79 OK
8:0 2000000c501fd804 OK 32 0x76 OK 0x76 OK
11:0 20000011c60b0aeb OK 29 0x73 OK 0x73 OK
12:0 2000000c501fd7ad OK 32 0x72 OK 0x72 OK
15:0 2000000c501fcb9 OK 31 0x6d OK 0x6d OK
```

Specifying the `-d` option provides more detailed information about the drive cages. See the following T-Class Storage Server example for `cage0`:

```
cli% showcage -d cage0
Id  Name LoopA Pos.A LoopB Pos.B Drives  Temp RevA RevB Model Side
  0  cage0 0:1:1    0 1:1:1    0    40 24-33 2.05 2.05  DC4  n/a

-----Cage detail info for cage0 -----

Position: ---

Fibre Channel Info PortA0 PortB0 PortA1 PortB1
      Link_Speed  4Gbps  0Gbps  0Gbps  4Gbps

-----SFP Info-----
FCAL SFP -State-- --Manufacturer-- MaxSpeed(Gbps) TXDisable TXFault RXLoss DDM
  0    0 OK      FINISAR CORP.          4.20 No        No      No      Yes
  0    1 OK      FINISAR CORP.          4.20 No        No      Yes     Yes
  1    0 OK      FINISAR CORP.          4.20 No        No      Yes     Yes
  1    1 OK      FINISAR CORP.          4.20 No        No      No      Yes

Interface Board Info      FCAL0      FCAL1
      Link A RXLEDs      Green      Off
      Link A TXLEDs      Green      Green
      Link B RXLEDs      Off        Green
      Link B TXLEDs      Green      Green
      LED(Loop_Split)    Off        Off
LEDS(system,hotplug) Green,Off Green,Off

-----Midplane Info-----
      Firmware_status      Current
      Product_Rev          2.05
      State                Normal Op
      Loop_Split           0
VendorId,ProductId      3PARdata,DC4
      Unique_ID 1062010000001C00

Power Supply Info State Fan State AC Model
      ps0      OK      OK OK      POI
      ps1      OK      OK OK      POI
      ps2      OK      OK OK      POI
      ps3      OK      OK OK      POI

-----Magazine Info----- ---State---
Mag SysLED HplLED Disks LoopA LoopB
  0  Green  Off   4 Ready Ready
  1  Green  Off   4 Ready Ready
  2  Green  Off   4 Ready Ready
  ...
  9  Green  Off   4 Ready Ready

-----Drive Info----- ---LoopA----- ---LoopB-----
Drive      NodeWWN      LED Temp(C) ALPA LoopState ALPA LoopState
  0:0 2000001862c4e410 Green      31 0xe1      OK 0xe1      OK
  0:1 2000001862c4e3f6 Green      31 0xe0      OK 0xe0      OK
  0:2 2000001862c4e3bc Green      28 0xdc      OK 0xdc      OK
  ...
  9:1 2000001862b9affb Green      30 0xa6      OK 0xa6      OK
  9:2 2000001862b9b035 Green      27 0xa5      OK 0xa5      OK
  9:3 2000001862b9b7b5 Green      25 0xa3      OK 0xa3      OK
```

When the power supply is switched off, it will be reported as Off through the `showcage -d` command as well as a degraded alert being posted. The following is a sample of the output:

```
cli% showcage -d cage3 | egrep -i 'Power|\<ps'
Power Supply Info  State Fan State      AC Model
                ps0      OK      OK      OK      MAG
                ps1      Off      OK      OK      MAG
                ps2 Failed      OK Failed      MAG
                ps3      OK      OK      OK      MAG

cli% showalert | grep Cage\ 3
Message          : Cage 3, Power Supply 1 Degraded (Power Supply Off)
Message          : Cage 3, Power Supply 2 Failed (Power Supply Failed, Power
Supply AC Failed)
cli%
```

NOTES

The power supply model, as shown in the Model column of the `showcage -d` output, is set by service personnel using the `setcage` command, as described in [setcage](#) on page 21.14.

COMMAND`showcim`**DESCRIPTION**

The `showcim` command displays the CIM server current status, either active or inactive. It also displays the current status of the HTTP and HTTPS ports and their port numbers. In addition, it shows the current status of the SLP port, that is either enabled or disabled.

SYNTAX`showcim`**AUTHORITY**

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLE

The following example shows the current CIM status:

```
cli% showcim
-Status- --SLP-- SLPPort -HTTP-- HTTPPort -HTTPS- HTTPSPort PGVer CIMVer
Enabled  Enabled    427 Enabled    5988 Enabled    5989 2.5.1 2.2.4
```

Where the columns are defined as:

- Status. Indicates the CIM server status.
 - ◆ --. Cannot determine the CIM server status.
 - ◆ Enabled. The CIM server is running.
 - ◆ Disabled. The CIM server is not running.

- SLP. Indicates the SLP port state.
 - ◆ --. Cannot determine the SLP port state.
 - ◆ Enabled. The SLP port state is enabled.
 - ◆ Disabled. The SLP port state is disabled.
- SLPPort. The SLP port. Default is 427.
- HTTP. Indicates the HTTP port state.
 - ◆ --. Cannot determine the HTTP port state.
 - ◆ Enabled. HTTP port is enabled.
 - ◆ Disabled. HTTP port is disabled.
- HTTPPort. HTTP port (1024 - 65535). The default value is 5988.
- HTTPS. The HTTPS port state.
 - ◆ --. Cannot determine the HTTPS port state.
 - ◆ Enabled. HTTPS port is enabled.
 - ◆ Disabled. HTTPS port is disabled.
- HTTPSPort. The HTTPS port (1024 - 65535). The default value is 5989.
- PGVer. The Pegasus version.
- CIMVer. Indicates the CIM version running.

NOTES

None.

COMMAND

showclienv

DESCRIPTION

The `showclienv` command displays the CLI environment parameters.

SYNTAX

showclienv

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the currently set CLI environment variables for sample system TestSystem:

```
cli% showclienv
Parameter Value
csvtable      0
nohdtot       0
hafter        -1
listdom       0
editor        emacs
```

NOTES

See the `setclienv` command for a complete description of the environment parameters.

COMMAND

showcpg

DESCRIPTION

The `showcpg` command displays common provisioning groups (CPGs) in the system.

AUTHORITY

Super, Service, Edit, Browse

SYNTAX

`showcpg [options <arg>] [<CPG_name>...|<pattern>...]`

OPTIONS

`-r`

Specifies that raw space used by the CPGs is displayed.

`-alert`

Indicates whether alerts are posted.

`-alerttime`

Show times when alerts were posted (when applicable).

`-sag`

Specifies that the snapshot administration space autogrowth parameters are displayed.

`-sdg`

Specifies that the snapshot data space autogrowth parameters are displayed.

`-hist`

Specifies that current data from the CPG, as well as the CPG's history data is displayed.

`-domain <domain_name_or_pattern,...>`

Shows only CPGs that are in domains with names that match one or more of the `<domain_name_or_pattern>` argument. This option does not allow listing objects within a domain of which the user is not a member.

SPECIFIERS

[<CPG_name>... | <pattern>...]

Specifies that common provisioning groups matching either the specified common provisioning group name or those common provisioning groups matching the specified pattern are displayed. This specifier can be repeated to display information for multiple common provisioning groups. If not specified, all common provisioning groups in the system are displayed. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

None.

EXAMPLES

The following example displays a system's common provisioning groups:

```
cli% showcpg
```

		----- SA-----						----- SD -----		
Id	Name	Warn%	TPVVs	CPVVs	LDs	TotMB	UseMB	LDs	TotMB	UseMB
0	cpg1	-	0	0	2	8192	0	2	32768	0
1	cpg2	-	0	1	2	8192	0	2	32768	0

2	total		0	1	4	16384	0	4	65536	0

The columns for the previous example output are identified as follows:

- Id. The CPG ID.
- Name. The CPG name.
- Warn%. The CPG's allocation warning threshold.
- TPVVs. Thinly provisioned virtual volumes associated with the CPG.
- CPVVs. Copy autogrow virtual volumes associated with the CPG.
- SA. Snapshot administration space.
 - ◆ LDs. The number of logical disks used for snapshot administration space.
 - ◆ TotMB. The total snapshot administration space in MBs.
 - ◆ UseMB. The total used snapshot administration space in MBs.
- SD. Snapshot data space.

- ◆ LDs. The number of logical disks used for snapshot data space.
- ◆ TotMB. The total snapshot data space in MBs.
- ◆ UseMB. The total used snapshot data space in MBs.

The following example displays the common provisioning group's snapshot administration space's autogrowth parameters:

```
cli% showcpg -sag
```

Id	Name	WarnMB	LimitMB	GrowMB	Args
0	guicpg1	-	-	2048	-ssz 2
1	clicpg2	-	-	2048	

The columns in the previous example are defined as follows:

- Id. The CPG ID.
- Name. The CPG name.
- WarnMB. The CPG's snapshot administration space allocation warning threshold, or warning limit.
- LimitMB. The CPG's snapshot administration space allocation limit threshold, or growth limit.
- GrowMB. The CPG's snapshot administration space growth increment in MBs.
- Args. The options used in the creation of the CPG.

The following example displays the common provisioning group's snapshot data space's autogrowth parameters:

```
cli% showcpg -sdg
```

Id	Name	WarnMB	LimitMB	GrowMB	Args
0	guicpg1	40960	51200	10240	-ssz 2
1	clicpg2	-	-	16384	

The columns in the previous example are identified as follows:

- Id. The CPG ID.
- Name. The CPG name.
- WarnMB. The CPG's snapshot data space allocation warning threshold.

- **LimitMB.** The CPG's snapshot data allocation limit threshold, or growth limit.
- **GrowMB.** The CPG's snapshot data space allocation limit threshold.
- **Args.** The options used in the creation of the CPG.

The following example displays the raw space used by the system's common provisioning groups:

```
cli% showcpg -r
```

----- SA----- SD-----													
Id	Name	Warn%	TPVVs	CPVVs	LDs	TotMB	RTotMB	UseMB	RUseMB	LDs	TotMB	RTotMB	UseMB

0	cpgr0	50	0	0	2	8192	16384	0	0	4	32768	65536	0
1	cpgr5	-	0	0	2	8192	16384	0	0	5	33024	44032	0

2	total		0	0	4	16384	32768	0	0	9	65792	109568	0

The columns in the previous example are identified as follows:

- **Id.** The physical disk ID.
- **Name.** The name of the common provisioning group.
- **Warn%.** The allocation warning percentage (see `-aw` option of the `createcpg` or `setcpg` command).
- **TPVVs.** The number of thinly provisioned virtual volumes using the common provisioning group.
- **CPVVs.** The number of common provisioning virtual volumes using the common provisioning group.
- **SA.** The values for the Snapshot Admin Space (SA).
 - ◆ **LDs.** The number of logical disks in the SA space.
 - ◆ **TotMB.** The total logical disk MB in the SA space.
 - ◆ **RTotMB.** The total physical (raw) MB in the SA space.
 - ◆ **UseMB.** The number of logical disk MB used in the SA space.
- **RUseMB.** The total physical (raw) MB used in the SA space.
- **SD.** The values for the Snapshot Data Space (SD).
 - ◆ **LDs.** The number of logical disks in the SD space.

- ◆ TotMB. The total logical disk MB in the SD space.
- ◆ RTotMB. The total physical (raw) MB in the SD space.
- ◆ UseMB. The number of logical disk MB used in the SD space.
- ◆ RUseMB. The total physical (raw) MB used in the SD space.

The following example displays the historical data for the common provisioning groups:

```
cli% showcpg -hist
CPG cpgr5
----- Sa ----- Sd -----
Time Warn% TPVVs TSVVs LDs TotMB UseMB LDs TotMB UseMB
Jun 14 10:47:14 - 0 0 2 8192 0 5 33024 0
Jun 14 10:36:51 - 0 0 2 8192 0 5 33024 0
-----

CPG cpgr0
----- Sa ----- Sd -----
Time Warn% TPVVs TSVVs LDs TotMB UseMB LDs TotMB UseMB
Jun 14 10:47:14 50 0 0 2 8192 0 4 32768 0
Jun 14 10:36:50 - 0 0 2 8192 0 4 32768 0
-----

cli% showcpg -hist -r
CPG cpgr5
----- Sa ----- Sd -----
Time Warn% TPVVs CPVVs LDs TotMB RTotMB UseMB RUseMB LDs TotMB RTotMB UseMB RUseMB
Jun 14 10:47:24 - 0 0 2 8192 16384 0 0 5 33024 44032 0 0
Jun 14 10:36:51 - 0 0 2 8192 16384 0 0 5 33024 44032 0 0
-----

CPG cpgr0
----- Sa ----- Sd -----
Time Warn% TPVVs CPVVs LDs TotMB RTotMB UseMB RUseMB LDs TotMB RTotMB UseMB RUseMB
Jun 14 10:47:24 50 0 0 2 8192 16384 0 0 4 32768 65536 0 0
Jun 14 10:36:50 - 0 0 2 8192 16384 0 0 4 32768 65536 0 0
-----
```

The columns in the previous example are identified as follows:

- Time. The time that the data collected was true.
- Warn%. The allocation warning percentage (see `-aw` option of the `createcpg` or `setcpg` command).
- TPVVs. The number of thinly provisioned virtual volumes using the common provisioning group.
- CPVVs. The number of commonly provisioned virtual volumes using the common provisioning group.

- Sa. The values for the Snapshot Admit Space (SA).
- Sd. The values for the Snapshot Data Space (SD).
 - ◆ LDs. The number of logical disks in the SA/SD space.
 - ◆ TotMB. The total logical disk MB in the SA/SD space.
 - ◆ RTotMB. The total physical (raw) MB in the SA/SD space.
 - ◆ UseMB. The number of logical disk MB used in the SA/SD space.
 - ◆ RUseMB. The total physical (raw) MB used in the SA/SD space.

NOTES

- When using the `createaldrv` command, the size of the logical disk space created is the first integer multiple of the RAID set size that is large enough to accommodate the requested virtual volume size.

For example, with the default RAID 5 layout with a set size of 768 MB, a requested virtual volume size of 8192 MB causes the creation of logical disks with a total size rounded up to an integer multiple of 768 that is 8448 MB. The growth increment of CPGs is similarly rounded up because the growth is done by creating logical disks that must be created in units of the logical disk RAID set size. See the *InForm OS Administrator's Guide* for further details.

- For this command, 1 MB = 1048576 bytes.
- A domain column can be included by using the `setclienv` command to set `listdom` to 1. The `listdom` option is also set to 1 if the CLI was started with the `-listdom` option or if the CLI was started with the `TPDLISTDOM` environment variable set.

COMMAND

showdate

DESCRIPTION

The `showdate` command displays the date and time for each system node.

SYNTAX

showdate

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the date and time for the system node:

```
cli% showdate
Node Date
0    Mon Apr 17 17:07:44 PDT 2007
1    Mon Apr 17 17:07:44 PDT 2007
```

NOTES

Set date and time information on nodes by issuing the `setdate` command. See [setdate](#) on page 21.27 for additional information.

COMMAND

`showdomain`

DESCRIPTION

The `showdomain` command displays a list of domains in a system.

SYNTAX

`showdomain [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d`

Specifies that detailed information is displayed.

`-sortcol <col> [, <dir>][: <col> [, <dir>] ...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified and separated by a colon (:). Rows that have the same information in them as earlier columns will be sorted by values in later columns.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays detailed information about a system's domains:

```
cli% showdomain -d
ID Domain      -----CreationTime----- ---Comments----
1 TestDomain Tue Jun 12 15:39:44 PDT 2007 blah blah blah.
```

In the example above:

- ID. The domain ID.
- Domain. The domain name.
- CreationTime. The date and time the domain was created.
- Comments. Information about the domain.

NOTES

None.

COMMAND

showeeprom

DESCRIPTION

The `showeeprom` command displays node EEPROM log information.

SYNTAX

`showeeprom [options] [<node_ID>...]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-dead`

Specifies that an EEPROM log for a node that has not started or successfully joined the cluster be displayed. If this option is used, it must be followed by a list of nodes. This option cannot be used with P3 node clusters.

SPECIFIERS

`<node_ID> . . .`

Specifies the node ID for which EEPROM log information is retrieved. Multiple node IDs are separated with a single space (0 1 2). If no specifiers are used, the EEPROM log for all nodes is displayed.

RESTRICTIONS

None.

EXAMPLES

The following example displays the EEPROM log for all nodes:

```
cli% showeeprom
Node: 0
-----
Board revision: 0920-1053-03.01
Assembly: FLH 2007/50 Serial 0039
System serial: 1000183
BIOS version: 2.1.3
OS version: 2.2.4.32
Reset reason: Unknown
Last boot: 2008-02-28 14:58:25 PST
Last cluster join: 2008-02-28 14:58:37 PST
Last panic: Never
Last panic request: Never
Error ignore code: 00
SMI context: 00
Last HBA mode: 2a000000
BIOS state: ff 23 26 27 28 29 2b 80
TPD state: 34 40 ff 2a 2c 2e 30 32
Code 128 (BIOS update) - Subcode 0x2020103 (2020102) Thu Feb 28 14:54:13 2008
Code 25 (PROM Failure) - Subcode 0x1 (0) Fri Feb 15 07:58:48 2008
[Repeat] Fri Feb 15 07:59:20 2008
Code 128 (BIOS update) - Subcode 0x2020102 (2020009) Fri Feb 15 07:58:39 2008
Code 25 (PROM Failure) - Subcode 0x1 (0) Fri Feb 15 07:56:33 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Thu Feb 14 23:30:05 2008
[Repeat] Fri Feb 15 08:36:13 2008
Code 25 (PROM Failure) - Subcode 0x1 (0) Tue Jan 29 13:31:35 2008
[Repeat] Tue Jan 29 13:32:07 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Tue Jan 29 13:30:56 2008
Code 25 (PROM Failure) - Subcode 0x1 (0) Tue Jan 29 13:17:57 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Tue Jan 29 13:17:28 2008
Code 25 (PROM Failure) - Subcode 0x1 (0) Tue Jan 29 13:14:49 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Tue Jan 29 13:04:57 2008
Code 10 (PCI Failure) - Subcode 0xd (30) Mon Jan 14 18:17:12 2008

Node: 1
-----
Board revision: 0920-1053-03.01
Assembly: FLH 2007/50 Serial 0042
System serial: 1000183
BIOS version: 2.1.3
OS version: 2.2.4.32
Reset reason: COLD_POWERON
Last boot: 2008-02-28 14:59:14 PST
Last cluster join: 2008-02-28 14:59:32 PST
Last panic: Never
Last panic request: Never
Error ignore code: 00
SMI context: 00
Last HBA mode: 2a000000
BIOS state: ff 23 26 27 28 29 2b 80
TPD state: 34 40 ff 2a 2c 2e 30 32
Code 128 (BIOS update) - Subcode 0x2020103 (2020102) Thu Feb 28 14:54:18 2008
Code 128 (BIOS update) - Subcode 0x2020102 (2020009) Fri Feb 15 08:10:03 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Thu Feb 14 23:34:54 2008
[Repeat] Fri Feb 15 08:41:02 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Tue Jan 29 13:58:56 2008
Code 15 (PCI_Fibre_Failure) - Subcode 0x0 (0) Tue Jan 29 13:50:54 2008
[Repeat] Tue Jan 29 13:51:02 2008
Code 15 (PCI_Fibre_Failure) - Subcode 0x0 (5) Tue Jan 29 13:50:38 2008
Code 25 (PROM Failure) - Subcode 0x0 (0) Tue Jan 29 13:49:11 2008
Code 20 (AP Init Failure) - Subcode 0x0 (0) Tue Jan 29 13:05:32 2008
Code 25 (PROM Failure) - Subcode 0x0 (0) Wed Jan 23 15:03:20 2008
Code 25 (PROM Failure) - Subcode 0x0 (0) Mon Jan 21 00:14:45 2008
Code 25 (PROM Failure) - Subcode 0x0 (0) Fri Jan 18 11:38:31 2008
Code 15 (PCI_Fibre_Failure) - Subcode 0x0 (5) Tue Jan 15 18:49:06 2008
```

In the example above:

- `Board revision` indicates the 3PAR part number for the node board, including any minor revision codes.
- `Assembly` indicates the code of the assembly, the year or week the node was produced, and the node serial number.
- `System serial` is the cluster serial number.
- `BIOS version` displays the currently installed BIOS version.
- `OS version` displays the currently installed OS version.
- `Reset reason` displays why the board was previously reset. Values can be:
 - ◆ `COLD_POWERON`. The node was powered off and back on.
 - ◆ `EXTERNAL_RESET`. Another node in the cluster forced the reset.
 - ◆ `WATCHDOG_RESET`. A watchdog timer forced the reset.
 - ◆ `PCI_RESET`. The node restarted.
- `Last boot` displays the time the node last started the OS.
- `Last cluster join` displays the time the node last joined the cluster.
- `Last panic` displays the last time another node in the cluster requested this node to take a panic.
- `Error ignore code` is for engineering use only.
- `SMI context` is for engineering use only.
- `Last HBA mode` contains PCI Fibre port settings forcing certain ports to start up in initiator mode and certain ports to start up in target mode.
- `BIOS state` is for engineering use only.
- `TPD state` is for engineering use only.

NOTES

None.

COMMAND

showeventlog

DESCRIPTION

The showeventlog command displays the current system event log.

SYNTAX

showeventlog [options <arg>]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-min <number>

Specifies that only events occurring after the specified number of minutes are shown. The <number> minimum value must be greater than 0.

-more

Specifies that you can page through several events at a time.

-oneline

Specifies that each event is formatted on one line.

-d

Specifies that detailed information is displayed.

-startt <time>

Specifies that only events after a specified time are to be shown. The time argument can be specified as either <timespec>, <datespec>, or both.

<timespec>

Specified as the hour (hh), as interpreted on a 24 hour clock, where minutes (mm) and seconds (ss) can be optionally specified. Acceptable formats are hh:mm:ss or hhmm.

<datespec>

Specified as the month (mm or month_name) and day (dd), where the year (yy) can be optionally specified. Acceptable formats are mm/dd/yy, month_name dd, dd month_name yy, or yy-mm-dd. If the syntax yy-mm-dd is used, the year must be specified.

`-endt <time>`

Specifies that only events before a specified time are to be shown. The `time` argument can be specified as either `<timespec>`, `<datespec>`, or both.

`<timespec>`

Specified as the hour (`hh`), as interpreted on a 24 hour clock, where minutes (`mm`) and seconds (`ss`) can be optionally specified. Acceptable formats are `hh:mm:ss` or `hhmm`.

`<datespec>`

Specified as the month (`mm` or `month_name`) and day (`dd`), where the year (`yy`) can be optionally specified. Acceptable formats are `mm/dd/yy`, `month_name dd, dd month_name yy`, or `yy-mm-dd`. If the syntax `yy-mm-dd` is used, the year must be specified.



NOTE: The `pattern` argument in the following options is a regular expression pattern that is used to match against the events each option produces. For each option, the `pattern` argument can be specified multiple times. For example:
`showeventlog -type Disk.* -type <Tpdctl client>`
`-sev Major` displays all events of severity `Major` and with a type that matches either the regular expression `Disk.*` or `<Tpdctl client>`.

`-sev <pattern>`

Specifies that only events with severities that match the specified `pattern(s)` are displayed on the command line.

`-nsev <pattern>`

Specifies that only events with severities that do not match the specified `pattern(s)` are displayed.

`-class <pattern>`

Specifies that only events with classes that match the specified `pattern(s)` are displayed.

`-nclass <pattern>`

Specifies that only events with classes that do not match the specified `pattern(s)` are displayed.

`-node <pattern>`

Specifies that only events from nodes that match the specified `pattern(s)` are displayed.

`-nnode <pattern>`

Specifies that only events from nodes that do not match the specified pattern(s) are displayed.

`-type <pattern>`

Specifies that only events with types that match the specified pattern(s) are displayed.

`-ntype <pattern>`

Specifies that only events with types that do not match the specified pattern(s) are displayed.

`-msg <pattern>`

Specifies that only events, whose messages match the specified pattern(s), are displayed.

`-nmsg <pattern>`

Specifies that only events, whose messages do not match the specified pattern(s), are displayed.

`-comp <pattern>`

Specifies that only events, whose components match the specified pattern(s), are displayed.

`-ncomp <pattern>`

Specifies that only events, whose components do not match the specified pattern(s), are displayed.

SPECIFIERS

None.

RESTRICTIONS

The InForm CLI stores 15 MB of event logs. If the number of logs exceeds the 15 MB limit, old logs are deleted. After a log is deleted, it cannot be recovered.

EXAMPLES

The following example displays the current system event log:

```
cli% showeventlog
Mon Sep 29 09:48:07 2003 PST
Node: 0, Seq: 51, Class: Status change, Severity: Informational, Type: Node booted
Node 0 has booted
Mon Sep 29 09:48:13 2003 PST
Node: 1, Seq: 50, Class: Status change, Severity: Informational, Type: Node booted
Node 1 has booted
Mon Sep 29 09:48:53 2003 PST
Node: 0, Seq: 334, Class: Status change, Severity: Informational, Type: Cage loop
status
Cage 0 is connected to the system on both ports. Autofixing previous alerts.
Mon Sep 29 09:48:53 2003 PST
Node: 0, Seq: 337, Class: Status change, Severity: Informational, Type: Cage loop
status
Cage 1 is connected to the system on both ports. Autofixing previous alerts.
Mon Sep 29 09:48:54 2003 PST
Node: 0, Seq: 419, Class: Status change, Severity: Informational, Type: Notification
VV 0 has started
Mon Sep 29 09:48:54 2003 PST
Node: 0, Seq: 421, Class: Status change, Severity: Informational, Type: Notification
VV 1 has started
```

The following example displays the system eventlog using the `-oneline` option:

```
cli% showeventlog -oneline
Time                TZn Node  Seq Class          Severity      Type
Message
Fri Sep 5 19:42:04 2003 PST    0 1154 Status change  Minor         Process has died
Process /opt/tpd/bin/tpdtcl /opt/tpd/bin/tpdtcl.tcl has died on node 0
Fri Sep 5 19:42:04 2003 PST    0 1155 Status change  Informational  Change in alert
state Alert 122 changed from state Resolved by System to New
Fri Sep 5 19:42:09 2003 PST    0 1157 Status change  Informational  Change in alert
state Alert 122 changed from state New to Resolved by System
Fri Sep 5 19:52:19 2003 PST    0 1192 Status change  Minor         Process has died
Process /opt/tpd/bin/tpdtcl /opt/tpd/bin/tpdtcl.tcl has died on node 0
Fri Sep 5 19:52:19 2003 PST    0 1193 Status change  Informational  Change in alert
state Alert 122 changed from state Resolved by System to New
```

NOTES

The event log can be removed by issuing the `removeeventlog` command. See [removeeventlog](#) on page 19.8 for more information.

COMMAND

showfirmwaredb

DESCRIPTION

The `showfirmwaredb` command displays the current database of firmware levels for possible upgrade. If issued without any options, the firmware for all vendors is displayed.

SYNTAX

`showfirmwaredb [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-n <vendor_name>`

Specifies that the firmware vendor from the SCSI database file is displayed.

`-l <new_scsidb_file>`

Specifies that the new SCSI database file is loaded into the system.

`-all`

Specifies current and past firmware entries are displayed. If not specified, only current entries are displayed.

`-sortcol <col>[,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the current database of firmware levels and prints firmware data:

```
cli% showfirmwaredb
```

Vendor	Prod_rev	Dev_Id	Fw_status	Cage_type	Firmware_File
HITACHI	[C1C1]	DK..DJ-18FC	Current	DC4	/opt/tpd/fw/drive/MDJFC1C1.BIN
HITACHI	[C1C1]	DK..DJ-72FC	Current	DC4	/opt/tpd/fw/drive/MDJFC1C1.BIN
HITACHI	[JLAK]	DK..CJ-18FC	Current	DC4	/opt/tpd/fw/drive/MCJF_LAK.BIN
HITACHI	[JLAK]	DK..CJ-36FC	Current	DC4	/opt/tpd/fw/drive/MCJF_LAK.BIN
HITACHI	[JLAK]	DK..CJ-72FC	Current	DC4	/opt/tpd/fw/drive/MCJF_LAK.BIN
HITACHI	[GLAK]	DK..CJ-18FC	Current	DC4	/opt/tpd/fw/drive/MCJF_LAK.BIN
HITACHI	[GLAK]	DK..CJ-36FC	Current	DC4	/opt/tpd/fw/drive/MCJF_LAK.BIN
HITACHI	[GLAK]	DK..CJ-72FC	Current	DC4	/opt/tpd/fw/drive/MCJF_LAK.BIN
HITACHI	[C0C0]	DK..EJ-36FC	Current	DC4.DC2	/opt/tpd/fw/drive/MEJFC0C0.BIN
HITACHI	[C0C0]	DK..EJ-72FC	Current	DC4.DC2	/opt/tpd/fw/drive/MEJFC0C0.BIN
HITACHI	[C0C0]	DK..EJ-14FC	Current	DC4.DC2	/opt/tpd/fw/drive/MEJFC0C0.BIN
HITACHI	[A6A6]	HUS157336ELF200	Current	ALL	/opt/tpd/fw/drive/MEKFA6A6.BIN
HITACHI	[A6A6]	HUS157373ELF200	Current	ALL	/opt/tpd/fw/drive/MEKFA6A6.BIN
HITACHI	[FA16]	HUS103014FLF210	Current	ALL	/opt/tpd/fw/drive/MFJFFA16.BIN
HITACHI	[FA16]	HUS103030FLF210	Current	ALL	/opt/tpd/fw/drive/MFJFFA16.BIN
HITACHI	[F7A7]	DK..BJ-xxFC	Current	DC4	/opt/tpd/fw/drive/3BJF_7A7.BIN
SEAGATE	[0004]	ST39103FC	Current	DC4	/opt/tpd/fw/drive/0004.lod
SEAGATE	[0004]	ST318203FC	Current	DC4	/opt/tpd/fw/drive/0004.lod
SEAGATE	[0005]	ST318304FC	Current	DC4	/opt/tpd/fw/drive/0005.lod
SEAGATE	[0005]	ST336704FC	Current	DC4	/opt/tpd/fw/drive/0005.lod
SEAGATE	[0004]	ST136403FC	Current	DC4	
SEAGATE	[0003]	ST318451FC	Current	DC4	/opt/tpd/fw/drive/0003.lod
SEAGATE	[0006]	ST336607FC	Current	DC4.DC2	/opt/tpd/fw/drive/FC_0006.lod
SEAGATE	[0006]	ST3146807FC	Current	DC4.DC2	/opt/tpd/fw/drive/FC_0006.lod
SEAGATE	[0002]	ST318453FC	Current	DC4	
SEAGATE	[XR35]	ST373207FC	Current	DC3	/opt/tpd/fw/drive/K7_XR35.lod
SEAGATE	[XR35]	ST3146707FC	Current	DC3	/opt/tpd/fw/drive/K7_XR35.lod
SEAGATE	[XR35]	ST3300007FC	Current	DC3	/opt/tpd/fw/drive/K7_XR35.lod
SEAGATE	[0005]	ST373207FC	Current	DC4.DC2	/opt/tpd/fw/drive/K7_0005.lod
SEAGATE	[0005]	ST3146707FC	Current	DC4.DC2	/opt/tpd/fw/drive/K7_0005.lod
SEAGATE	[0005]	ST3300007FC	Current	DC4.DC2	/opt/tpd/fw/drive/K7_0005.lod
SEAGATE	[FD57]	ST3400001FC	Current	DC4.DC2	
SEAGATE	[FD75]	ST3500001FC	Current	DC4.DC2	
SEAGATE	[0002]	ST3400071FC	Current	DC4.DC2	/opt/tpd/fw/drive/FC_0002.lod
SEAGATE	[0002]	ST3500071FC	Current	DC4.DC2	/opt/tpd/fw/drive/FC_0002.lod
SEAGATE	[XT02]	ST3400071FC	Current	DC3	/opt/tpd/fw/drive/FC_XT02.lod
SEAGATE	[XT02]	ST3500071FC	Current	DC3	/opt/tpd/fw/drive/FC_XT02.lod
Maxtor	[1HW0]	7Y250M0	Current	DC3	
SEAGATE	[FC08]	STATHENA-F2FC	Current	DC2.DC3	
SEAGATE	[F101]	ST373554FC	Current	DC4	
FUJITSU	[0105]	MAP3735FC	Current	DC4	
3PARDATA	[4.43]	KBOD_[01]	Current	DC4	/opt/tpd/fw/cage/kbod_01/targonly.fc-
4.43					
3PARDATA	[4.43]	JBOD	Current		/opt/tpd/fw/cage/kbod_01/targonly.fc-4.43
3PARDATA	[1.21]	DC2	Current	DC2	/opt/tpd/fw/cage/dc2/lbod_fw.bin-1.21
3PARDATA	[01]	DC3	Current	DC3	/opt/tpd/fw/cage/dc3/dc3_fw.bin-01
3PARDATA	[19]	DC3-ALPHAFC	Current	DC3	/opt/tpd/fw/cage/dc3alpha/dc3alpha_fw.bin-
19					
3PARDATA	[86]	DC3-SATA	Current	DC3	/opt/tpd/fw/cage/dc3sata/dc3sata_fw.bin-
86					
3PARDATA	[0.12]	KBOD_[23]	Current	DC4	/opt/tpd/fw/cage/kbod_23/targonly.fc-
0.12					

NOTES

The firmware information displayed by the `showfirmwaredb` command is used when issuing the `upgradecage` and `upgradepd` commands. See [upgradecage](#) on page 30.2 and [upgradepd](#) on page 30.4 for more information.

COMMAND

showhost

DESCRIPTION

The `showhost` command displays information about defined hosts and host paths in the system.

SYNTAX

```
showhost [options <arg>] [<hostname>...|<pattern>...]
```

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d`

Shows a detailed listing of the host and path information.

`-verbose`

Shows a verbose listing of all host information.

`-chap`

Shows the CHAP authentication information.

`-desc`

Shows the host descriptor information.

`-noname`

Shows only host paths (WWNs and iSCSI names) that are not assigned to a host.

`-domain <domainname_or_pattern,...>`

Shows only hosts that are in domains with names that match one or more of the `<domainname_or_pattern>` argument. This option does now allow listing objects within a domain of which the user is not a member.

SPECIFIERS

`<hostname>...`

Name of the host up to 31 characters in length. This specifier can be repeated to set properties for multiple hosts.

<pattern>...

Specifies that properties are set for all hosts matching the specified glob-style pattern. This specifier can be repeated to set properties for multiple hosts using different patterns.

RESTRICTIONS

None.

EXAMPLES



NOTE: For the following two examples, the Domain column appears only if the `-listdom` global option or `TPDLISTDOM` environment variable was set prior to starting the CLI.

The following example displays information for all system hosts:

```
cli% showhost
Id Name          Domain -----WWN/iSCSI_Name----- Port
0 pe750-07-iscsi -      iqn.1991-05.com.microsoft:pe750-07 1:3:1
1 adt            -                               210000E08B056C21 0:2:1
                               210100E08B256C21 1:2:1
-- -            -                               210000E08B023C71 1:5:1
                               210000E08B023F71 0:2:2
```

The following example displays detailed host and path information:

```
cli% showhost -d
Id Name          Domain -----WWN/iSCSI_Name----- Port  IP_addr
0 pe750-07-iscsi -      iqn.1991-05.com.microsoft:pe750-07 1:3:1  192.168.2.181
1 adt            -                               210000E08B056C21 0:2:1  -
1 adt            -                               210100E08B256C21 1:2:1  -
-- --            -                               210000E08B023C71 1:5:1  -
-- --            -                               210000E08B023F71 0:2:2  -
```

The following example displays host descriptor properties:

```
cli% showhost -desc
----- Host queasy10 -----
Name       : queasy10
Id         : 0
Location   : Rack 35, Position 8
IP Address : --
OS         : --
Model      : --
Contact    : --
Comment    : --
```

The following example displays host CHAP properties:

```
cli% showhost -chap
Id Name      -Initiator_CHAP_Name- -Target_CHAP_Name-
0 queasy10 queasy10                s019
1 foo        --                    --
```

The following example displays all host information:

```
cli% showhost -verbose
Id Name      -----WWN/iSCSI_Name----- Port IP_addr
0 queasy10 210000E08B027B60                0:0:1 n/a
1 foo      myiscsipath.3pardata.com ---    0.0.0.0
Id Name      -Initiator_CHAP_Name- -Target_CHAP_Name-
0 queasy10 queasy10                s019
1 foo        --                    --

----- Host queasy10 -----
Name       : queasy10
Id         : 0
Location   : Rack 35, Position 8
IP Address : --
OS         : --
Model      : --
Contact    : --
Comment    : --
```

NOTES

- If host names or patterns are specified, then hosts with names that match any of the patterns are listed, otherwise all hosts are listed. Patterns are glob-style (shell-style) patterns (see Help on sub, globpat).

- Host descriptor information is available only for hosts that have been assigned a name through the `createhost` command.

COMMAND

`showiscsisession`

DESCRIPTION

The `showiscsisession` command shows the iSCSI sessions.

SYNTAX

`showiscsisession [option <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-sortcol <col>[,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

RESTRICTIONS

None.

EXAMPLES

The following example displays the iSCSI session information:

```
cli% showiscsisession
N:S:P ---IPAddr---- TPGT TSIH Conns -----iSCSI_Name----- StartTime-----
1:3:1 192.168.2.181 131 13 1 ign.1991-05.com.microsoft:pe750-07 Tue Nov 29 12:43:25 PST 2005
```

In the example above:

- N:S:P. The port location in Node:Slot:Port format, where Slot is the PCI slot number in the node and Port is the port number in the PCI card.
- IPAddr. The IP address of the Ethernet port.
- TPGT. The Target Portal Group Tag.
- TSIH. The Target Session Identifying Handle.
- Conns. The number of connections for the session.
- iSCSI_Name. The iSCSI name of the host.
- StartTime. The time the session was started.

NOTES

None

COMMAND`showld`**DESCRIPTION**

The `showld` command displays configuration information about the system's logical disks.

SYNTAX

```
showld [options <arg>] [<LD_name>|<pattern>...]
```

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

```
-cpg <CPG_name|pattern>...
```

Requests that only logical disks in common provisioning groups (CPGs) that match the specified CPG names or patterns be displayed. Multiple CPG names or patterns can be repeated using a comma-separated list (for example `-cpg <CPG_name>, <CPG_name>...`).

```
-vv <VV_name|pattern>...
```

Requests that only logical disks mapped to virtual volumes that match any of the specified names or patterns be displayed. Multiple volume names or patterns can be repeated using a comma-separated list (for example `-vv <VV_name>, <VV_name>...`).

```
-domain <domainname|pattern>...
```

Only shows logical disks that are in domains with names that match any of the names or specified patterns. Multiple domain names or patterns can be repeated using a comma-separated list (for example `-vv <domainname_name>, <domainname_name>...`).



NOTE: When working with domains, you can use the `-listdom` option to view the Domain column in the command output or for a more global solution, set the `TPDLISTDOM` environment variable.

```
M-sortcol <col> [,<dir>][:<col>[,<dir>]...]
```

Sorts command output based on the column number <col>. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting <dir> as follows:

inc

Sort in increasing order (default).

dec

Sort in decreasing order.

-d

Requests that more detailed layout information is displayed.

-p

Requests that policy information about the logical disk is displayed.

SPECIFIERS

<LD_name> . . .

Requests that information for a specified logical disk is displayed. This specifier can be repeated to display configuration information about multiple logical disks. If not specified, configuration information for all logical disks in the system is displayed.

<pattern> . . .

Specifies that the logical disk matching the specified glob-style pattern is displayed. This specifier can be repeated to display configuration information about multiple logical disks. If not specified, configuration information for all logical disks in the system is displayed. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

None.

EXAMPLES

The following example displays information for all system logical disks:

```
cli% showld
Id Name RAID State Own SizeMB UsedMB Use Lgct LgId WThru MapV
0 log0.0 1 normal 0/- 20480 0 log 0 --- Y N
1 log1.0 1 normal 1/- 20480 0 log 0 --- Y N
2 pdsld0.0 1 normal 0/1 8192 0 P,F 0 --- Y N
3 admin.usr.0 1 normal 0/1 5120 5120 V 0 --- N Y
4 admin.usr.1 1 normal 1/0 5120 5120 V 0 --- N Y
5 VV111.usr.0 0 normal 0/1 256 256 V 0 --- N Y
6 VV111.usr.1 0 normal 1/0 256 256 V 0 --- N Y
7 Chevelle.usr.0 0 normal 0/1 256 256 C,V 0 --- N Y
8 tp-1-sa-0.0 1 normal 0/1 8192 256 C,SA 0 --- N Y
9 tp-1-sd-0.0 0 normal 0/1 32768 768 C,SD 0 --- N Y
10 442.usr.0 0 normal 0/1 256 256 V 0 --- N Y
11 tp-0-sa-0.0 1 normal 0/1 8192 256 C,SA 0 --- N Y
12 tp-0-sd-0.0 0 normal 0/1 32768 1024 C,SD 0 --- N Y
14 BVFullyProv.usr.0 0 normal 0/1 256 256 C,V 0 --- N Y
15 FullyProvCPVV.usr.0 0 normal 1/0 256 256 C,V 0 --- N Y
16 BVFullyProv.usr.1 0 normal 1/0 256 256 C,V 0 --- N Y
17 BaseVFPfromCPG.usr.0 0 normal 0/1 1024 1024 C,V 0 --- N Y
18 BaseVFPfromCPG.usr.1 0 normal 1/0 1024 1024 C,V 0 --- N Y
19 BaseVFPfromCPGAdvan.usr.0 0 normal 0/1 1024 1024 C,V 0 --- N Y
20 BaseVFPfromCPGAdvan.usr.1 0 normal 1/0 1024 1024 C,V 0 --- N Y
21 BVfromPDs.usr.0 0 normal 0/1 512 512 V 0 --- N Y
22 BVfromPDs.usr.1 0 normal 1/0 512 512 V 0 --- N Y
23 BVfromPDsAdvanced.usr.0 0 normal 0/1 512 512 V 0 --- N Y
24 BVfromPDsAdvanced.usr.1 0 normal 1/0 512 512 V 0 --- N Y
25 advancedbasevolume.usr.0 0 normal 0/1 1024 1024 C,V 0 --- N Y
26 advancedbasevolume.usr.1 0 normal 1/0 1024 1024 C,V 0 --- N Y
```

The columns in the previous example are identified as follows:

- **Id.** The ID of the logical disk.
- **Name.** The name of the logical disk.
- **Domain.** The domain to which the logical disks belongs. If the domain does not exist, – is displayed.
- **RAID.** The RAID type (1 is for RAID 10 and 5 is for RAID 50).
- **State.** The current status of the logical disk.
 - ◆ **normal.** The logical disk has started and is available for use.
 - ◆ **orphan.** Both the primary owner and backup owner nodes are down, and the logical disk's data is not available.
 - ◆ **preserved.** Some disks used by the logical disk are missing. Data belonging to the logical disk is saved on the preserved logical disk.
 - ◆ **stopped.** The logical disk is stopped, and its data is not available.

- ◆ `stopping`. The logical disk is being stopped; normally flushes any in-flight data to disk.
- ◆ `removing`. The logical disk is being deleted.

The following `State` values indicate that an uncontrolled shutdown has occurred and the logical disk was not properly closed before the shutdown.

- ◆ `auto_check`. The logical disk is checked for validity.
 - ◆ `checking`. The logical disk is checked for validity.
 - ◆ `need_check`. The logical disk has been checked, and an inconsistency has been found.
 - ◆ `need_pd`. One of the physical disks containing chunklets that make up the logical disk is not yet in the valid state.
- `Own`. The first number is the logical disk owner node, and the second number is the logical disk backup node.
 - `SizeMB`. The total size of the logical disk, in MB.
 - `UsedMB`. The portion of the logical disk that is being used by virtual volumes, in MB.
 - `Use`. The function of the logical disk.
 - ◆ `V`. The logical disk is used for a virtual volume.
 - ◆ `C,SA`. The logical disk is used for the snapshot administration space for a common provisioning group (CPG).
 - ◆ `C,SD`. The logical disk is used for the snapshot data space for a CPG.
 - ◆ `log`. The logical disk is used as a logging logical disk.
 - ◆ `P,F`. The logical disk is used for preserved data.
 - `Lgct`. The number of chunklets that are logged to the logical disk.
 - `LgId`. The ID of the logging disk that is being used for logging by the logical disk.
 - `WThru`. Indicates whether the logical disk is in write-through mode.
 - `MapV`. Indicates if the logical disk is mapped to a virtual volume. Valid values are `Y` (yes) and `N` (no).

The following example displays detailed information about the system logical disks:

```
cli% showld -d
```

Id	Name	CPG	RAID	Own	SizeMB	RSizeMB	RowSz	StepKB	SetSz	Refcnt	Avail	CAvail	-----CreationTime-----	
0	log0.0	---	1	0/-	20480	40960	1	256	2	0	mag	mag	2007-11-29 18:44:02 PST	
1	log1.0	---	1	1/-	20480	40960	1	256	2	0	mag	mag	2007-11-29 18:44:02 PST	
2	pdsld0.0	---	1	0/1	4096	8192	2	256	2	0	mag	mag	2007-11-29 18:44:03 PST	
3	admin.usr.0	---	1	0/1	5120	10240	2	256	2	0	mag	mag	2007-11-29 18:44:12 PST	
4	admin.usr.1	---	1	1/0	5120	10240	2	256	2	0	mag	mag	2007-11-29 18:44:12 PST	
5	Collie.usr.0	---	0	1/0	256	256	1	256	1	0	ch	ch	2008-01-15 16:51:23 PST	

6							55552	110848						

The columns in the previous example are identified as follows:

- **Id.** The ID of the logical disk.
- **Name.** The name of the logical disk.
- **Domain.** The domain to which the logical disks belongs. If the domain does not exist, - is displayed.
- **CPG.** Lists the CPG to which the logical disk belongs. If the logical disk does not belong, --- is displayed.
- **RAID.** The RAID type (0 is for RAID 0, 1 is for RAID 10, and 5 is for RAID 50).
- **Own.** The first number is the logical disk owner node, and the second number is the logical disk backup node.
- **SizeMB.** The total size of the logical disk, in MB.
- **RSizeMB.** The logical disk's raw size, in MB.
- **RowSz.** The row size for the logical disk.
- **StepKB.** The step size for the logical disk, in KB.
- **SetSz.** The set size for the logical disk.
- **Refcnt.** Indicates how many active relocation operations are occurring for the logical disk (reference count).
- **Avail.** Indicates the availability setting specified when the logical disk was created. Availability determines from where spare chunklets can be allocated when one of the logical disk's chunklets fails.
 - ◆ **disk.** A chunklet on the same disk as the failing chunklet can be used as a replacement.

- ◆ **mag.** A chunklet from another disk within the same drive magazine can be used as a replacement.
- ◆ **cage.** A chunklet from another drive cage can be used as a replacement.
- ◆ **port.** A chunklet from another port can be used as a replacement.
- **CAvail.** Indicates the current, or actual, availability: **disk**, **mag**, **port**, or **cage**.
- **Creation Time.** Indicates when the logical disk was created.

The following example displays policy information about all system logical disks:

```
cli% showld -p
```

Id	Name	Domain	Keep_Preserved	Dev_Type	K_RPM
0	log0.0	-	0	FC	10
1	log1.0	-	0	FC	10
2	pdsld0.0	-	0	FC	10
3	admin.usr.0	-	1	FC	10
4	admin.usr.1	-	1	FC	10
5	test2.usr.0	-	0	FC	10
6	test2.usr.1	-	0	FC	10

7					

The columns in the previous example are identified as follows:

- **Id.** The logical disk ID.
- **Name.** The logical disk name.
- **Domain.** The domain to which the logical disks belongs. If the domain does not exist, - is displayed.
- **Keep_Preserved.** Indicates if preserved data is saved for the logical disk. Valid values are 1 (saved) and 0 (not saved).
- **Dev_Type.** Device type for the physical disk (FC for Fibre Channel or NL for Nearline). If no device type is specified, the default is Fibre Channel drives. If a system has only Nearline drives, **-p -devtype NL** must be specified when creating the volumes.
- **K_RPM.** Shows the device speed used by the majority of the chunklets of the logical disk.

NOTES

For this command, KB=1024 bytes and MB=1048576 bytes.

COMMAND

showldch

DESCRIPTION

The `showldch` command displays configuration information about the chunklet mapping for one logical disk.

SYNTAX

`showldch [options <arg>] <LD_name>`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-degraded`

Show only the chunklets in sets that cause the logical disk availability to be degraded. For example, if the logical disk normally has cage level availability, but one set has two chunklets in the same cage, then the chunklets in that set are shown.

`-lformat <form>`

Shows the logical disk's row and set layout on the physical disk, where the line format `<form>` is one of:

- ◆ `row` - One line per logical disk row.
- ◆ `set` - One line per logical disk set.

`-linfo <info>[,<info>...]`

Specifies the information shown for each logical disk chunklet, where `<info>` can be one of:

- ◆ `pdpos` - Shows the physical disk position (default).
- ◆ `pdid` - Shows the physical disk ID.
- ◆ `pdch` - Shows the physical disk chunklet.

If multiple `<info>` fields are specified, each corresponding field will be shown separated by a dash (-).

SPECIFIERS

<LD_name>

Specifies the logical disk name, using up to 27 characters.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about chunklets for logical disk `r1.usr.0`:

```
cli% showldch r1.usr.0
```

Ldch	Row	Set	PdPos	Pdid	Pdch	State	Usage	Media	Sp	From	To
0	0	0	1:3:2	30	0	normal	ld	valid	N	---	---
1	0	0	1:3:3	31	3	normal	ld	valid	N	10:0	---
2	0	1	2:3:1	45	0	normal	ld	valid	N	---	---
3	0	1	1:3:0	28	0	normal	ld	valid	N	---	---
4	0	2	0:1:2	6	0	normal	ld	valid	N	---	---
5	0	2	2:1:3	39	0	normal	ld	valid	N	---	---
6	0	3	0:2:0	8	0	normal	ld	valid	N	---	---
7	0	3	1:2:2	26	0	normal	ld	valid	N	---	---
8	0	4	2:3:3	47	0	normal	ld	valid	N	---	---
9	0	4	1:1:2	22	0	normal	ld	valid	N	---	---
10	0	5	2:2:3	43	0	normal	ld	valid	N	---	---
11	0	5	0:3:0	12	0	normal	ld	valid	N	---	---
12	0	6	0:0:0	0	0	normal	ld	valid	N	---	---
13	0	6	1:0:2	18	0	normal	ld	valid	N	---	---
14	0	7	2:0:1	33	0	normal	ld	valid	N	---	---
15	0	7	2:0:2	34	5	normal	ld	valid	N	16:1	---

The columns in the previous example are identified as follows:

- **Ldch.** The chunklet on the logical disk.
- **Row.** The row that contains the chunklet.
- **Set.** The set that contains the chunklet.
- **PdPos.** The position of the disk in the drive magazine.
- **Pdid.** The ID of the physical disk that contains the chunklet.
- **Pdch.** The physical disk ID for the chunklet.
- **State.** The current status of the chunklet.

- ◆ `normal`. The chunklet is available for use.
- ◆ `normal,smag`. A servicemag operation is being performed on the disks.
- ◆ `stale`. The chunklet is not available for use because of a medium failure or a connectivity failure.
- ◆ `logging`. Writes to the chunklet are being logged to a separate logging logical disk.
- ◆ `playback`. Data is played back from the logging logical disks.
- ◆ `passthru`. The chunklet does not process physical disk errors.
- ◆ `preserved`. Any I/O to the chunklet is written to the preserved logical disks.
- ◆ `preserved playback`. Data is played back from the preserved logical disks.
- **Usage.** The current use of the chunklet.
 - ◆ `available`. The chunklet is not in use.
 - ◆ `ld`. The chunklet is in use by a logical disk.
 - ◆ `reldsrc`. The chunklet is the source of a logical disk relocation operation.
 - ◆ `reltgt`. The chunklet is the target of a logical disk relocation operation.
 - ◆ `synch`. The chunklet is both the source and the target of a logical disk relocation operation (synchronizing the chunklet).
 - ◆ `cmprcl`. The system is completing the logical disk relocation operation.
 - ◆ `abtrcl`. The system is canceling the logical disk relocation operation.
- **Media.** The current status of the physical disk medium for the chunklet.
 - ◆ `valid`. The chunklet is available for use.
 - ◆ `failed`. The medium has encountered errors and is not available for use.
- **Sp.** The spare status of the chunklet; Y indicates the chunklet is used for spare, N indicates the chunklet is not used as spare.
- **From.** The initial location of the chunklet before relocation.
- **To.** The destination location of the chunklet during relocation

The following example displays information about degraded chunklets for logical disk r1.usr.0.

```
cli% showldch -degraded r1.usr.0
Ldch Row Set PdPos Pdid Pdch State Usage Media Sp From To
    0  0  0 1:3:2  30    0 normal   ld valid  N   --- ---
    1  0  0 1:3:3  31    3 normal   ld valid  N 10:0 ---
   14  0  7 2:0:1  33    0 normal   ld valid  N   --- ---
   15  0  7 2:0:2  34    5 normal   ld valid  N 16:1 ---
cli% showldch -degraded r1.usr.1
No degraded sets in LD r1.usr.1
```

The following example displays row and set layout for chunklets for logical disk test.usr.0.

```
cli% showldch -lformat row test.usr.0
-----Set0-----Set1-----
row  Ch0  Ch1  Ch2  Ch3  Ch0  Ch1  Ch2  Ch3
    0 2:3:1 1:2:2 0:3:2 1:3:0 0:0:0 2:0:1 1:2:0 0:1:0
    1 2:3:3 1:0:2 0:0:2 2:0:3 0:2:2 1:1:0 2:1:1 1:3:0
    2 0:3:0 2:2:1 1:2:2 2:1:3 0:1:2 1:3:2 2:3:1 0:2:2
    3 0:2:0 1:2:0 2:1:3 1:0:0 2:2:3 0:0:0 1:1:2 0:1:0
    4 2:3:3 1:0:2 0:3:2 2:0:1 0:0:2 1:3:0 2:1:1 1:1:2
```

The following example displays row and set layout including pdid and pdch for chunklets for logical disk test.usr.0.

```
cli% showldch -lformat row -linfo pdid,pdch test.usr.0
-----Set0-----Set1-----
row  Ch0  Ch1  Ch2  Ch3  Ch0  Ch1  Ch2  Ch3
    0 45-7 26-6 14-7 28-6  0-7 33-7 24-6  4-6
    1 47-7 18-7  2-6 35-6 10-7 20-7 37-6 28-8
    2 12-6 41-6 26-8 39-7  6-8 30-8 45-9 10-9
    3  8-7 24-8 39-9 16-8 43-8  0-9 22-7  4-8
    4 47-9 18-9 14-9 33-9  2-8 28-9 37-8 22-9
```

The following example displays row and set layout including `pdid` and `pdpos` for chunklets for logical disk `test.usr.0`.

```
cli% showldch -lformat set -linfo pdid,pdpos test.usr.0
row set      Ch0      Ch1      Ch2      Ch3
  0   0 45-2:3:1 26-1:2:2 14-0:3:2 28-1:3:0
  0   1  0-0:0:0 33-2:0:1 24-1:2:0  4-0:1:0
  1   0 47-2:3:3 18-1:0:2  2-0:0:2 35-2:0:3
  1   1 10-0:2:2 20-1:1:0 37-2:1:1 28-1:3:0
  2   0 12-0:3:0 41-2:2:1 26-1:2:2 39-2:1:3
  2   1  6-0:1:2 30-1:3:2 45-2:3:1 10-0:2:2
  3   0  8-0:2:0 24-1:2:0 39-2:1:3 16-1:0:0
  3   1 43-2:2:3  0-0:0:0 22-1:1:2  4-0:1:0
  4   0 47-2:3:3 18-1:0:2 14-0:3:2 33-2:0:1
  4   1  2-0:0:2 28-1:3:0 37-2:1:1 22-1:1:2
```

NOTES

None.

COMMAND

showldmap

DESCRIPTION

The `showldmap` command displays the mapping from a logical disk to virtual volumes.

SYNTAX

`showldmap <LD_name>`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

`<LD_name>`

Specifies the logical disk name, using up to 27 characters.

RESTRICTIONS

None.

EXAMPLES

The following example displays the region of logical disk `v0.usr.0` that is used for a virtual volume:

```
cli% showldmap v0.usr.0
Area Start(MB) Length(MB) VVId VVName      VVSp VVOff(MB)
0      0      512      0   v0          usr  0
```

The columns in the previous example are identified as follows:

- `Area`. The ID of the region.
- `Start(MB)`. The offset from the beginning of the logical disk, in MB.
- `Length(MB)`. The length, or size, of the region, in MB.
- `VVId`. The ID of the virtual volume that contains the region.

- `VVName`. The name of the virtual volume that contains the region.
- `VVSp`. The type of the space-user (`usr`), snapshot data (`sd`), or snapshot administration (`sa`)-for which the region is being used.
- `VVOff (MB)`. The offset from the beginning of the space that contains the region.

NOTES

None.

COMMAND

`showlicense`

DESCRIPTION

The `showlicense` command displays the currently installed license key and current license information.

SYNTAX

`showlicense`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-raw`

Specifies that the license key originally entered (the raw license) be displayed. The license key is displayed in a manner that is acceptable input for the `setlicense` command.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the currently installed license information:

```
cli% showlicense
License key was generated on Thu Feb 17 18:30:24 2007

License features currently enabled:
Dynamic Optimization
InForm Suite
Recovery Manager for Exchange
Recovery Manager for Oracle
System Reporter
Remote Copy
System Tuner
Thin Provisioning (1024G)
VSS Provider for Microsoft Windows

License features enabled on a trial basis:
Virtual Copy                               Expires on August 11, 2007
```

The following example displays the original license key entered on the system:

```
cli% showlicense -raw
60R3-0C1G-60R3-2C1G-60R3-0C9G-70R3-0C1G
60RK-0C0A-FSXZ-8YZ4-Z884-84DW-7CD6-JLKB
7GZA-RRZH-L01W-00AW-FFLR-T848-VWQA-K3F1
GXCJ-G8MG-0XW7-3VGL-EF28-MBDM-03V4-LG2D
YWQ5-KW9G-99GB-3FRL-4FJN-3AH2-T287-SNGD
XN9F-EVGV-25Z9-D2VK-5EXD-KXJ4-JMQE-6JSL
1XA0-9ZTA-H5KR-VG8Y-JBV8-BR72-A1E1-3GS3
ZSG4-32VZ-C2EQ-C69H-B0FR-0XG3-4NAF-G3VA
SV47-NH2R-BL1L-TJKR-31F2-V9QX-0WM0-AWTH
LRB7-8XQD-BLHD-LF68-A4BW-K4QG-ZS7B-Q41X
35Y1-6CZC-KBJ5-6VQE-EC2G-Q6EG-SJV0-KMHC
SAWG-YJ4V-WRE5-3GZA-DGW0-ZYVE-5SVT-8TJX
QR9W-R92D-SSTY-RVWY-1Y2B-YH8D-KRN5-ZZ7Y...
```

NOTES

None.

COMMAND

shownet

DESCRIPTION

The `shownet` command displays the configuration and status of the administration network interfaces, including the configured gateway and network time protocol (NTP) server.

AUTHORITY

Super, Service, Edit, Browse

SYNTAX

`shownet [option]`

OPTION

`-d`

Displays detailed information.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the status of the system administration network interfaces:

```
cli% shownet -d
IP Address: 192.168.5.191    Netmask 255.255.252.0
Assigned to nodes: 01
Connected through node 0
Status: Active

Admin interface on node 0
MAC Address:    00:02:AC:43:00:34
RX Packets:      577781  TX Packets:      235867
RX Bytes:      333310390  TX Bytes:      33041292
RX Errors:      0  TX Errors:      0
RX Dropped:      0  TX Dropped:      0
RX FIFO Errors:  0  TX FIFO Errors:  2
RX Frame Errors: 0  TX Collisions:  0
RX Multicast:    0  TX Carrier Errors: 0
RX Compressed:   0  TX Compressed:   0

Remote copy interface in slot 1 on node 0
MAC Address:    00:04:23:C2:1B:72
RX Packets:      0  TX Packets:      104
RX Bytes:      0  TX Bytes:      15014
RX Errors:      0  TX Errors:      0
RX Dropped:      0  TX Dropped:      0
RX FIFO Errors:  0  TX FIFO Errors:  0
RX Frame Errors: 0  TX Collisions:  0
RX Multicast:    0  TX Carrier Errors: 0
RX Compressed:   0  TX Compressed:   0

Remote copy interface in slot 1 on node 0
MAC Address:    00:04:23:C2:1B:73
RX Packets:      0  TX Packets:      0
RX Bytes:      0  TX Bytes:      0
RX Errors:      0  TX Errors:      0
RX Dropped:      0  TX Dropped:      0
RX FIFO Errors:  0  TX FIFO Errors:  0
RX Frame Errors: 0  TX Collisions:  0
RX Multicast:    0  TX Carrier Errors: 0
RX Compressed:   0  TX Compressed:   0
```

NOTES

Specifying `-d` includes information useful for debugging network issues.

COMMAND

shownode

DESCRIPTION

The `shownode` command displays an overview of the node specific properties and its component information. Various command options can be used to display the properties of PCI cards, CPUs, physical memory, drives, and power supplies.

SYNTAX

`shownode [option] [<node_ID>...]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

The following options are for node summary and inventory information:

`-i`

Shows node inventory information in the table format.

`-d`

Shows node and component information in the table format.

The following options are for node component information. These options cannot be used together with options `-i` and `-d`.

`-verbose`

Specifies detailed information in verbose format. It can be used with any of the following component options:

`-pci`

Displays PCI card information.

`-cpu`

Displays CPU information.

`-mem`

Displays physical memory information.

`-drive`

Displays the disk drive information.

`-ide`

The `-ide` option was deprecated in the 2.2.4 release and will be changed or removed in a future release. Use the `-drive` option to display the disk drive information.

`-ps`

Displays power supply information.

SPECIFIERS

`<node_ID>...`

Displays the node information for the specified node ID(s). This specifier is not required.

RESTRICTIONS

None.

EXAMPLES

The following example displays the operating environment status for all nodes in the system:

```
cli% shownode
```

						Control	Data
Node	-Name--	-State--	Master	InCluster	---LED---	Mem(MB)	Mem(MB)
0	nodeh7	Degraded	No	Yes	GreenBlnk	2048	2048
1	nodeh3c	Degraded	Yes	Yes	GreenBlnk	2048	2048

In the example above:

- Node. The node ID.
- Name. The node name.
- State. The state of the node. Values displayed are:
 - ◆ --. Cannot determine the overall node state.
 - ◆ OK. The node and its components are operating normally.
 - ◆ Degraded. For T-Class and S-Class nodes, the node is degraded due to a missing, failed, or degraded power supply. For E-Class nodes, the node is degraded to due a missing or degraded fan.

- ◆ Failed. The node has not initialized, is offline, has mismatching kernel versions has bad drive partitions, is rebooting, or has shutdown.
- Master. Specifies is the node is the master node.
- InCluster. Indicates if the node is in the cluster.
- LED. The node LED information. Values are as follows:
 - ◆ --. The node LED is unknown.
 - ◆ off. The node LED is off.
 - ◆ Green. The kernal is not running.
 - ◆ GreenBlink. The node is in normal state.
 - ◆ Amber. The node is degraded or failed and the kernal is not running.
 - ◆ AmberBlink. The node is degraded or failed.
- Control Mem(MB). The total memory in the node in MB.
- Data Mem(MB). The total data memory in the node in MB.

The following examples display detailed information (`-d` option) for the nodes including their components in a table format. The `shownode -d` command can be used to display the tail information of the nodes including their components in name and value pairs.

```
cli% shownode -d
```

-----Physical Memory-----										
Node	Riser	Slot	SlotID	-Name--	-Usage-	--Type--	--Manufacturer--	-Serial-	-Latency-	Size(MB)
0	n/a	0	J4200	DIMM0	Control	FB-DIMM	Micron Technology	E20BCA01	CL5.0/5.0	2048
0	n/a	1	J4300	DIMM1	Control	FB-DIMM	Micron Technology	E20BCA0C	CL5.0/5.0	2048
0	2-slot	0	J0901	DIMM0.0	Data	DDR_SDRAM	Micron Technology	E010DF6E	CL2.0/2.5	2048
0	4-slot	1	J0900	DIMM1.0	Data	DDR_SDRAM	Micron Technology	E010DF67	CL2.0/2.5	2048
0	4-slot	2	J1300	DIMM2.0	Data	DDR_SDRAM	Micron Technology	E010DF63	CL2.0/2.5	2048
1	n/a	0	J4200	DIMM0	Control	FB-DIMM	Micron Technology	E20BC9AC	CL5.0/5.0	2048
1	n/a	1	J4300	DIMM1	Control	FB-DIMM	Micron Technology	E20BC9AE	CL5.0/5.0	2048
1	2-slot	0	J0901	DIMM0.0	Data	DDR_SDRAM	Micron Technology	E010DF95	CL2.0/2.5	2048
1	4-slot	1	J0900	DIMM1.0	Data	DDR_SDRAM	Micron Technology	E010DF97	CL2.0/2.5	2048
1	4-slot	2	J1300	DIMM2.0	Data	DDR_SDRAM	Micron Technology	E010DF96	CL2.0/2.5	2048

-----Internal Drives-----						
Node	Drive	-Manufacturer-	---Model---	-Serial-	-Firmware-	Size(MB) Type
0	0	Seagate	ST9100821AS	5NJ09DF3	3.AAB	95396 SATA
1	0	Seagate	ST9100821AS	5NJ08NA4	3.AAB	95396 SATA

These columns and values are described in detail in the following examples.

```
cli% shownode -mem
```

Node	Riser	Slot	SlotID	-Name--	-Usage-	--Type---	--Manufacturer---	-Serial-	-Latency-	Size(MB)
0	n/a	0	J4200	DIMM0	Control	FB-DIMM	Micron Technology	E20BC997	CL5.0/5.0	2048
0	n/a	1	J4300	DIMM1	Control	FB-DIMM	Micron Technology	E20BC996	CL5.0/5.0	2048
0	2-slot	0	J0901	DIMM0.0	Data	DDR_SDRAM	Micron Technology	E010DF65	CL2.0/2.5	2048
0	4-slot	1	J0900	DIMM1.0	Data	DDR_SDRAM	Micron Technology	E010DF98	CL2.0/2.5	2048
0	4-slot	2	J1300	DIMM2.0	Data	DDR_SDRAM	Micron Technology	E010DF64	CL2.0/2.5	2048
1	n/a	0	J4200	DIMM0	Control	FB-DIMM	Micron Technology	E20BC995	CL5.0/5.0	2048
1	n/a	1	J4300	DIMM1	Control	FB-DIMM	Micron Technology	E20BC992	CL5.0/5.0	2048
1	2-slot	0	J0901	DIMM0.0	Data	DDR_SDRAM	Micron Technology	E010DF6A	CL2.0/2.5	2048
1	4-slot	1	J0900	DIMM1.0	Data	DDR_SDRAM	Micron Technology	E010DF6F	CL2.0/2.5	2048
1	4-slot	2	J1300	DIMM2.0	Data	DDR_SDRAM	Micron Technology	E010DF69	CL2.0/2.5	2048

- In the example above:Node. The node ID.
- Riser. The location of the DIMM. The DIMM may be located in a 2-slot or 4-slot riser card. If the DIMM is located on the motherboard the value is n/a.
- Slot. The slot number.
- SlotID. The slot ID in JXXX format.
- Name. The location of the DIMM slots printed on the board.
- Usage. The usage of the physical memory, either Control or Data.
- Type. The type of DIMM such as SDRAM, DDR, or DDR2.
- Manufacturer. The manufacturer of the memory.
- Serial. The serial number.
- Latency. The CAS latency.
- Size. The memory size in MB.

```
cli% shownode -drive
...
Node Drive -Manufacturer- ---Model--- -Serial- -Firmware- Size(MB) Type
  0      0 Seagate          ST9100821AS 5NJ09DF3 3.AAB      95396 SATA
  1      0 Seagate          ST9100821AS 5NJ08NA4 3.AAB      95396 SATA
```

In the example above:

- Node. The node ID.
- Drive. The disk drive ID.
- Manufacturer. The manufacturer of the disk drive.
- Model. The model number of the disk drive.
- Serial. The serial number of the disk drive.
- Firmware. The firmware version on the disk drive.
- Size. The drive size in MB.
- Type. The type of disk drive.

```
cli% shownode -pci

-----PCI Cards-----
Node Slot Type -Manufacturer- -Model- -Serial- -Rev- Firmware
  0      0 FC  QLOGIC          2302   D13503   1    3.3.16
  0      1 FC  QLOGIC          2302   D44171   1    3.3.16
  1      0 FC  QLOGIC          2302   C31037   1    3.3.16
```

In the example above:

- Node. The node ID.
- Slot. The slot ID.
- Type. The PCI card type, either Fibre Channel (FC) or Ethernet (Eth).
- Manufacturer. The PCI card manufacturer.
- Model. The model of the PCI card.

- **Serial.** The serial number of the PCI card.
- **Rev.** The revision number of the PCI card.
- **Firmware.** The firmware version on the PCI card.

```
cli% shownode -cpu
```

```
-----CPUs-----
Node CPU -Manufacturer- -----Serial----- CPUSpeed(MHz) BusSpeed(MHz)
    0   0 GenuineIntel   000188AAF2AEA667           995         132.76
    0   1 GenuineIntel   0000D8D47BD100A6           995         132.76
    1   0 GenuineIntel   0000F5A65AAD5D6F           995         132.72
    1   1 GenuineIntel   00028FE5F6E4068D           995         132.72
```

In the example above:

- **Node.** The node ID.
- **CPU.** The CPU ID.
- **Manufacturer.** The manufacturer name of the CPU.
- **Serial.** The serial number of the CPU.
- **CPUSpeed.** The speed of the CPU in MHz.
- **BusSpeed.** The bus speed of the CPU in MHz.

```
cli% shownode -ps
```

```
-----Power Supplies-----
Node PS -PSState-- FanState ACState DCState -BatState- ChrgLvl(%)
    0   0 NotPresent --      --      --      NotPresent      0
    0   1 OK        OK      OK      OK      OK      100
    1   0 OK        OK      OK      OK      OK      100
    1   1 NotPresent --      --      --      NotPresent      0
```

In the example above:

- **Node.** The node ID.
- **PS.** The power supply ID.
- **PSState.** The power supply state. Values can be:
 - ◆ **--.** Cannot determine the state.

- ◆ OK. The power supply is operating normally.
- ◆ Failed. The power supply is operating abnormally.
- ◆ NotPresent. The power supply is missing.
- ◆ Degraded. There is a fan failure, or the battery state is not OK.
- FanState. The power supply fan state. Values can be:
 - ◆ --. Cannot determine the state.
 - ◆ OK. The fan is operating normally.
 - ◆ Failed. The fan is operating abnormally.
- ACState. The state of the AC power. Values can be:
 - ◆ --. Cannot determine the state.
 - ◆ OK. Normal operation.
 - ◆ Failed. Abnormal operation.
- DCState. The state of DC power. Values can be:
 - ◆ --. Cannot determine the state.
 - ◆ OK. Normal operation.
 - ◆ Failed. Abnormal operation.
- BatState. The battery state. Values can be:
 - ◆ --. Cannot determine the state.
 - ◆ OK. Normal operation.
 - ◆ Failed. Abnormal operation.
 - ◆ NotPresent. The battery is missing.
 - ◆ MaxLifeLow. The maximum battery life is low.
- ChrgLvl. The battery charge level in percentage.

NOTES

None.

COMMAND

`shownodeenv`

DESCRIPTION

The `shownodeenv` command displays the node operating environment status, including voltages and temperatures.

SYNTAX

`shownodeenv [options <arg>...]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-n <node_ID>...`

Specifies the ID of the node whose environment status is displayed. Multiple node IDs can be specified as a series of integers separated by a space (1 2 3). If no option is used, then the environment status of all nodes is displayed.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the operating environment status for all nodes in the system:

```
cli% shownodeenv
Node 0
-----
      Measurement      Reading  Lo Limit  Hi Limit  Status
      CPU0 1.32V:      1.31 V    1.28 V    1.36 V    Within Tolerance
      CPU1 1.32V:      1.31 V    1.28 V    1.36 V    Within Tolerance
      82563 1.20V:      1.22 V    1.13 V    1.26 V    Within Tolerance
      31154 1.30V:      1.29 V    1.22 V    1.37 V    Within Tolerance
      82563 1.90V:      1.92 V    1.79 V    2.00 V    Within Tolerance
      3.30V:           3.34 V    3.11 V    3.47 V    Within Tolerance
      PLX 3.30V:       3.32 V    3.12 V    3.47 V    Within Tolerance
      VCC 5.00V:       5.15 V    4.74 V    5.76 V    Within Tolerance
      V_PTT 1.20V:     1.20 V    1.13 V    1.26 V    Within Tolerance
      MCH 1.50V:       1.50 V    1.41 V    1.58 V    Within Tolerance
      ESB 1.50V:       1.51 V    1.41 V    1.58 V    Within Tolerance
      FBD 1.50V:       1.44 V    1.41 V    1.58 V    Within Tolerance
      FBD 1.80V:       1.80 V    1.69 V    1.89 V    Within Tolerance
      VTT_FBD 0.90V:   0.91 V    0.84 V    0.95 V    Within Tolerance
      ESB 1.20V:       1.21 V    1.13 V    1.26 V    Within Tolerance
      PLX 1.00V:       1.00 V    0.94 V    1.05 V    Within Tolerance
      Osprey DDR 1.25V: 1.25 V    1.17 V    1.32 V    Within Tolerance
      Osprey DDR 2.50V: 2.50 V    2.36 V    2.63 V    Within Tolerance
      Osprey Lnk 1.87V: 1.85 V    1.76 V    1.97 V    Within Tolerance
      FPGA 2.50V:      2.50 V    2.36 V    2.63 V    Within Tolerance
      12.00V:          12.06 V    11.37 V    12.62 V    Within Tolerance
      MCH Temp:        38 C      0 C      85 C    Within Tolerance
      Board Temp:      25 C      0 C      70 C    Within Tolerance
      LM94 Temp:       23 C      0 C      65 C    Within Tolerance
      LM87 Temp:       23 C      0 C      65 C    Within Tolerance
      LM87 Ext Temp:   20 C     -10 C     65 C    Within Tolerance
      CPU0 Temp:       24 C      0 C      85 C    Within Tolerance
      CPU1 Temp:       25 C      0 C      85 C    Within Tolerance
      CPU0 VRM Temp:   n/a      n/a      n/a    Within Tolerance
      CPU1 VRM Temp:   n/a      n/a      n/a    Within Tolerance
      CPU DIMM0 Temp:  37 C      0 C     105 C    Within Tolerance
      CPU DIMM1 Temp:  38 C      0 C     105 C    Within Tolerance
Node 1
-----
      Measurement      Reading  Lo Limit  Hi Limit  Status
      ...
```

NOTES

None.

COMMAND

`showpatch`

DESCRIPTION

The `showpatch` command displays patches applied to a system.

SYNTAX

`showpatch [option <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-hist`

Specifies the history of all patches and updates applied to the system.

`-d <ID>`

Specifies the details on a specified patch ID.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The `showpatch` command is specific to each individual patch and typically displays these fields:

- `Patch ID`. Specifies the patch ID.
- `Release Version`. Specifies TPD or UI release affected by the patch.
- `Synopsis`. Specifies the purpose of patch.
- `Date`. Specifies the build date of patch.
- `Bugs fixed`. Specifies the bugs fixed.
- `Description`. Specifies a detailed description of the problem or fix.
- `Affected Packages`. Specifies the new packages being changed.

- **Obsoletes.** Specifies the patch IDs deleted by this patch.
- **Requires.** Specifies the patch IDs of any other patches required by this patch.
- **Notes.** Specifies any special instructions for the patch.

NOTES

This command displays all the patches currently affecting the system if options are not used.

COMMAND

showpd

DESCRIPTION

The `showpd` command displays configuration information about a system's physical disks.

SYNTAX

`showpd [-i|-e|-c|-s|-space] [options] [<PD_ID>...]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-i|-e|-c|-s|-space`

Specifies that either physical disk inquiry information, environment information, or chunklet use information is displayed.

`-i`

Specifies a request for disk inquiry data.

`-e`

Specifies a request for the disk environment and error information.

`-c`

Specifies a request for chunklet use totals for each physical disk.

`-s`

Shows detailed information regarding the state of each physical disk.

`-space`

Specifies a request for capacity usage totals from each physical disk (MB).

`-sortcol <col> [,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

`-failed`

Specifies that only failed physical disks are displayed.

`-degraded`

Specifies that only degraded physical disks are displayed. If both

`-failed` and `-degraded` are specified, the command shows failed disks and degraded disks.

`-nodes <node_list>`

Specifies that only disks attached to the nodes from the node list are displayed. The node list is specified as a series of integers separated by commas (0,1,2). A list can also consist of a single integer (1).

`-slots <slot_list>`

Specifies that only disks on the slots from the slot list are displayed. The slot list is specified as a series of integers separated by commas (0,1,2). A list can also consist of a single integer (1).

`-ports <port_list>`

Specifies that only disks on the ports from the port list are displayed. The port list is specified as a series of integers separated by commas (0,1,2). A list can also consist of a single integer (1).

`-p <pattern>`

Physical disks matching the specified pattern are displayed. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (*item*). Multiple nodes are separated with a single comma (1, 2, 3). A range of nodes is separated with a hyphen (0-3). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0-3). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0-3). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0-3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0-3). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0-3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0-3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>,<ID>,...`

Specifies that physical disks identified by their device IDs are selected for virtual volume and logical disk creation. Device IDs can be specified in a comma-separated list. Issue the `showpd -i` command for a list of physical disk device IDs for use with the `-devid` option.

`-devtype <FC|NL>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline). Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks used must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

`-w <world-wide_name>`

Specifies the WWN of the physical disk. This option and argument must be specified if the `<PD_ID>` specifier is not used.

SPECIFIERS

`<PD_ID>`

Specifies a physical disk ID. This specifier must be used if the `-w` option is not specified.

RESTRICTIONS

None.

EXAMPLES

The following example displays general information for all system physical disks:

```
cli% showpd
```

ID	CagePos	SizeMB	Chunk	Free	Spare	----Node_WWN----	State	APort	BPort	LdA
0	0:0:0	69632	272	133	34	20000011C60B0379	valid	1:0:1*	0:0:1	Y
1	0:3:0	69632	272	125	34	20000011C60B18B4	valid	1:0:1	0:0:1*	Y
2	0:4:0	69632	272	125	34	2000000C50C3560D	valid	1:0:1	0:0:1*	Y
3	0:7:0	69632	272	133	34	2000000C501FD935	valid	1:0:1*	0:0:1	Y
4	0:8:0	69632	272	134	34	2000000C501FD804	valid	1:0:1*	0:0:1	Y
5	0:11:0	69632	272	126	34	20000011C60B0AEB	valid	1:0:1	0:0:1*	Y
6	0:12:0	69632	272	126	34	2000000C501FD7AD	valid	1:0:1	0:0:1*	Y
7	0:15:0	69632	272	134	34	2000000C501FCBE9	valid	1:0:1*	0:0:1	Y

8		557056	2176	1036	272					

The columns in the previous example are identified as follows:

- **Id.** The physical disk ID.
- **CagePos.** The position of the disk in the drive cage. When the position is not valid (for example, in the case of a missing disk), the most recent position might be shown, followed by a question mark (?).
- **SizeMB.** Displays the usable size of the disk in megabytes.
- **Chunk.** The number of chunklets in the disk.
- **Free.** The number of free chunklets.
- **Spare.** The number of spare chunklets.
- **Node_WWN.** The disk's WWN.
- **State.** The state of the disk. Values can be:
 - ◆ **valid.** The disk is valid.
 - ◆ **invlabel.** Invalid label on disk.
 - ◆ **invcage.** The disk position within the drive cage is not determined.
 - ◆ **missing.** No path is found to the disk.
 - ◆ **invdrvtp.** The disk type is not supported by the SCSI database.
 - ◆ **invdrvfw.** The disk firmware is not supported by the SCSI database.

- ◆ `invdrvblksz`. The drive block size is invalid. Valid block size is 512 bytes.
- ◆ `invdrvcp`. The drive capacity size is invalid.
- ◆ `notready`. The disk is not ready.
- ◆ `new`. The disk is new.
- ◆ `failed`. The disk has failed.
- `APort`. The port location for the A port of the physical disk. If the primary path, the port location is followed by an asterisk (*). If disabled, the port location is followed by a dash (-).
- `BPort`. The port location for the B port of the physical disk. If the primary path, the port location is followed by an asterisk (*). If disabled, the port location is followed by a dash (-).
- `LdA`. Specifies whether logical disks have been allocated, either yes (Y) or no (N).

The following example displays inquiry information for all disks:

```
# showpd -i
ID CagePos Device_id Vendor FW_Revision Serial FW_status Type K_RPM
0 0:0:0 ST373207FC SEAGATE XR35 3KT01JVA current FC 10
1 0:3:0 ST373207FC SEAGATE XR35 3KT01P5V current FC 10
2 0:4:0 ST373207FC SEAGATE XR35 3KT00TBA current FC 10
3 0:7:0 ST373207FC SEAGATE XR35 3KT01JF1 current FC 10
4 0:8:0 ST373207FC SEAGATE XR35 3KT01JD9 current FC 10
5 0:11:0 ST373207FC SEAGATE XR35 3KT01QZF current FC 10
6 0:12:0 ST373207FC SEAGATE XR35 3KT01KVD current FC 10
7 0:15:0 ST373207FC SEAGATE XR35 3KT01KLD current FC 10
```

The columns in the previous example are identified as follows:

- `Id`. The physical disk ID.
- `CagePos`. The position of the disk in the drive cage. When the position is not valid (for example, in the case of a missing disk), the most recent position might be shown, followed by a question mark (?).
- `Device_id`. Disk manufacturer's disk identification string.
- `Vendor`. Name of the disk manufacturer (for example, HITACHI).
- `FW_Revision`. Disk manufacturer's firmware revision tracking string.

- **Serial.** Disk manufacturer's serial number.
- **FW_status.** Indicates whether the physical disk firmware is current or not current.
- **Type.** Indicates the device type for the physical disk that might be FC for a Fibre Channel drive or NL for a nearline drive.
- **K_RPM.** Indicates the speed at which the disks are spinning. Higher performance drives generally have higher RPM rates. Valid values are 7, 10 and 15.

The following example displays chunklet use information for all disks:

```
cli% showpd -c
```

--- Normal Chunklets ---- Spare Chunklets ----											
- Used - ---- Unused ----						- Used - ---- Unused ----					
ID	Total	OK	Fail	Free	Uninit	Fail	OK	Fail	Free	Uninit	Fail
0	67	38	0	26	0	0	0	0	3	0	0
1	67	36	0	28	0	0	0	0	3	0	0
2	67	38	0	26	0	0	0	0	3	0	0
3	67	36	0	28	0	0	0	0	3	0	0
4	67	38	0	26	0	0	0	0	3	0	0
5	67	36	0	28	0	0	0	0	3	0	0
6	67	37	0	27	0	0	0	0	3	0	0
7	67	36	0	28	0	0	0	0	3	0	0
(...)											
39	67	0	0	65	0	0	0	0	2	0	0
40	67	0	0	65	0	0	0	0	2	0	0
41	67	0	0	65	0	0	0	0	2	0	0
42	67	0	0	65	0	0	0	0	2	0	0
43	67	0	0	65	0	0	0	0	2	0	0
44	67	0	0	65	0	0	0	0	2	0	0
45	67	0	0	65	0	0	0	0	2	0	0
46	67	0	0	65	0	0	0	0	2	0	0
47	67	0	0	65	0	0	0	0	2	0	0

48	3216	882	0	2200	0	0	0	0	134	0	0

The columns in the previous example are identified as follows:

- **Normal Chunklets.** This area provides information about chunklets that are not reserved for use as spares.
- **Spare Chunklets.** This area provides information about chunklets that are reserved for use as spares.
- **ID.** Physical disk ID, as assigned by the system. For unadmitted disk the ID appears as dashes (--).

- **Total.** Number of chunklets on the physical disk. Each chunklet occupies 256 MB of contiguous space.
- **OK.** Number of chunklets with data that is accessible to the system.
- **Fail.** Number of failed chunklets.
- **Free.** Number of initialized but currently unused chunklets available for use by logical disks.
- **Uninit.** Number of chunklets being cleaned.

The following example displays environment and error information for all disks:

```
cli% showpd -e
ID  CagePos  Corr_Rd_er  UnCor_rd_er  Corr_Wt_er  Uncor_wt_er  T(C)
0   0:0:0      0           0           0           0          35
1   0:0:1      0           0           0           0          34
2   0:0:2      0           0           0           0          31
3   0:0:3      0           0           0           0          27
4   0:1:0      0           0           0           0          34
5   0:1:1      0           0           0           0          34
6   0:1:2      0           0           0           0          31
7   0:1:3      0           0           0           0          27
8   0:2:0      0           0           0           0          37
9   0:2:1      0           0           0           0          35
10  0:2:2      0           0           0           0          32
11  0:2:3      0           0           0           0          27
(....)
39  1:4:3      0           0           0           0          27
40  1:6:0      0           0           0           0          34
41  1:6:1      0           0           0           0          33
42  1:6:2      0           0           0           0          31
43  1:6:3      0           0           0           0          27
44  1:7:0      0           0           0           0          34
45  1:7:1      0           0           0           0          34
46  1:7:2      0           0           0           0          32
47  1:7:3      0           0           0           0          27
```

The columns in the previous example are identified as follows:

- **Id.** Physical disk ID, as assigned by the system. For unadmitted disk the ID appears as dashes (--).
- **CagePos.** The position of the disk in the drive cage. When the position is not valid (for example, in the case of a missing disk), the most recent position might be shown, followed by a question mark (?).

- Corr_Rd_er. Number of chunklets with correctable read errors.
- UnCor_rd_er. Number of chunklets with uncorrectable read errors.
- Corr_Wt_er. Number of chunklets with correctable write errors.
- Uncor_wt_er. Number of chunklets with uncorrectable write errors.
- T(C). Temperature in degrees celsius.

The following example displays the states of each physical disk:

```
cli% showpd -s
ID CagePos -State- -Detailed_State-
0 0:0:0 normal normal
1 0:3:0 normal normal
2 0:4:0 normal normal
3 0:7:0 normal normal
4 0:8:0 normal normal
5 0:11:0 normal normal
6 0:12:0 normal normal
7 0:15:0 normal normal
```

The following example displays the capacity usage totals for all disks:

```
cli% showpd -space
----- (MB) -----
ID CagePos Type -State- TotalCap VolumeCap SpareCap FreeCap FailedCap
0 0:0:0 FC valid 69632 13056 8704 47872 0
1 0:3:0 FC valid 69632 15104 8704 45824 0
2 0:4:0 FC valid 69632 15104 8704 45824 0
3 0:7:0 FC valid 69632 13056 8704 47872 0
4 0:8:0 FC valid 69632 12800 8704 48128 0
5 0:11:0 FC valid 69632 14848 8704 46080 0
6 0:12:0 FC valid 69632 14848 8704 46080 0
7 0:15:0 FC valid 69632 12800 8704 48128 0
-----
8 557056 111616 69632 375808 0
```


NOTES

- In the `showpd` output, when the position of the disk is not valid (for example, in the case of a missing disk), the most recent position might be displayed, followed by a question mark (?).
- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` were deprecated and replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.
- To see the device type for a physical disk (Fibre Channel or Nearline), use `showpd -i`.

COMMAND

showpdata

DESCRIPTION

The showpdata command displays information about the preserved data in the system.

SYNTAX

showpdata [<LD_name>]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

[<LD_name>]

Requests that preserved data for a specific logical disk is displayed. This specifier is not required on the command line. If not specified, then the amount of preserved data by logical disk is displayed.

RESTRICTIONS

None.

EXAMPLES

The following example displays preserved data information for logical disk `admin.usr.3`:

```
cli% showpdata admin.usr.3
showpdata v0.usr.0
Preserved LD raid sets
      Ldname      Set      PreservedCnt
      admin.usr.3  0        1
No preserved chunklets
```

NOTES

None.

COMMAND

showpdch

DESCRIPTION

The `showpdch` command displays the status of selected physical disk chunklets.

SYNTAX

`showpdch [options] <PD_ID|pattern>...`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-a`

Specifies that information about all chunklets is displayed.

`-ld`

Specifies that information about chunklets used for logical disks are displayed. This is the default behavior of the `showpdch` command.

`-fail`

Specifies that information about failed chunklets-media-failed chunklets, disk-failed chunklets, or chunklets marked as failed by the operating system-is displayed.

`-mov`

Specifies that information about chunklets that have moved, are scheduled to move, or are moving, is displayed.

`-from <pdid,...>`

Specifies chunklets that have moved or are to be moved from the matching PD IDs.

`-cln`

Specifies that information for clean chunklets is displayed.

`-cng`

Specifies that information for chunklets that are being cleaned by the system, is displayed.

`-tgt`

Specifies that information for chunklets marked as targets of relocation is displayed.

`-src`

Specifies that information about chunklets that are marked as sources of relocation, is displayed.

`-spr`

Specifies that information about chunklets that are marked as spares, is displayed.

`-log`

Specifies that information about chunklets that are logging is displayed.

`-sync`

Specifies that information about chunklets that are synchronizing with their RAID sets is displayed.

SPECIFIERS

`<PD_ID|pattern>...`

Specifies either the physical disk ID using an integer, or a pattern of physical disks, indicated with a glob-style pattern. Multiple disk IDs or patterns can be specified. See [Glob-Style Pattern](#) on page 2.4 for more information.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (`item`). Multiple nodes are separated with a single comma (`1, 2, 3`). A range of nodes is separated with a hyphen (`0-7`). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (*item*). Multiple slots are separated with a single comma (1 , 2 , 3). A range of slots is separated with a hyphen (0–7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (*item*). Multiple ports are separated with a single comma (1 , 2 , 3). A range of ports is separated with a hyphen (0–4). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1 , 2 , 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1 , 2 , 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1 , 2 , 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1 , 2 , 3). A range of disks is separated with a hyphen (0–3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for logical disk creation. The total number of chunklets on the disks must be greater than the specified number.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for logical disk creation. The total number of chunklets on the disks must be less than the specified number.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for logical disk creation. The total number of free chunklets must be greater than the specified number.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for logical disk creation. The total number of free chunklets must be less than the specified number.

`-devid <ID>,<ID>,...`

Specifies that physical disks identified by their device IDs are selected for logical disk creation. Device IDs can be specified in a comma-separated list. Device IDs can be displayed by issuing the `showpd -i` command.

`-devtype <device_type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

RESTRICTIONS

If no option is specified, the `showpdch` command defaults to displaying information about chunklets used for logical disks (`-ld`).

EXAMPLES

The following example displays information about chunklets on physical disk 1:

```
cli% showpdch 1
```

Pdid	Chnk	LdName	LdCh	State	Usage	Media	Sp	Cl	From	To
1	0	admin.usr.2	11	normal	ld	valid	N	N	---	---
1	1	admin.usr.2	23	normal	ld	valid	N	N	---	---
1	2	admin.usr.2	35	normal	ld	valid	N	N	---	---

Total chunklets: 3

The columns in the previous example are identified as follows:

- Pdid. The physical disk on which the chunklets reside.
- Chnk. The chunklet number.
- LdName. The name of the logical disk that is using the spare chunklet.
- LdCh. The position of the chunklet on the logical disk.
- State. The state of the chunklet as identified by the kernel.
 - ◆ logging. I/O to the chunklet is written to the logging logical disk.
 - ◆ playback. Data is played back from the logging logical disks.
 - ◆ passthru. Chunklets do not process physical disk errors.
 - ◆ preserved. Any I/O to the chunklet is written to the preserved logical disks.
 - ◆ preserved playback. Data is played back from the preserved logical disks.
 - ◆ stale. The chunklet is not available for use because of a medium failure or a connectivity failure.
 - ◆ normal. The chunklet is available for use.
 - ◆ normal,smag. A servicemag operation is performed on the disks.
 - ◆ none. Chunklets were not used by any logical disk.
- Usage. Shows whether the spare chunklet is in use by a logical disk.

- ◆ available. The chunklet is available for use as a spare or as a logical disk.
- ◆ ld. The chunklet is in use by a logical disk.
- ◆ synch. The chunklet is both the source and the target of a logical disk relocation operation (synchronizing the chunklet).
- ◆ cmprel. The system is completing the logical disk relocation operation.
- ◆ relsrc. Relocation source. The data has been moved to another chunklet.
- ◆ reltgt. Relocation target. The data in the chunklet has been moved from another spare chunklet.
- ◆ abtrel. Abort relocation. The system is canceling the logical disk relocation operation.
- Media. The current status of the physical disk medium for the chunklet.
 - ◆ valid. The chunklet is available for use.
 - ◆ failed. The medium has encountered errors and is not available for use.
- Sp. The spare status of the chunklet; Y indicates the chunklet is reserved for spare, N indicates a previously free chunklet selected by the system as a spare.
- Cl. The clean status of the chunklet. N indicates that the chunklet is in-use. Y indicates that the chunklet is clean. Cg indicates that the chunklet is being cleaned.
- From. The initial location of the chunklet before relocation in the syntax <PD_ID>:<chunklet_number>.
- To. The destination location of the chunklet during relocation in the syntax <PD_ID>:<chunklet_number>.

NOTES

None.

COMMAND

showpdvv

DESCRIPTION

The `showpdvv` command displays the virtual volumes that are mapped to a particular physical disk.

SYNTAX

`showpdvv <PD_ID> [<chunklet>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

`<PD_ID>`

Specifies the physical disk ID using an integer.

`[<chunklet>]`

Specifies the chunklet number in a physical disk to which virtual volumes are mapped. This specifier is not required.

RESTRICTIONS

None.

EXAMPLES

The following example displays that the user space and snapshot administration space of virtual volumes `v0` and `v1`, respectively, are mapped to physical disk 39:

```
cli% showpdvv 39
VVID  Space  Name
0     usr    v0
1     sa     v1
```

NOTES

None.

COMMAND

showport

DESCRIPTION

The showport command displays information about ports in the system.

SYNTAX

The syntax of the showport command can be one of the following:

- showport [-i|-c|-par|-rc|-rcfc|-rcip|-iscsi|-iscsiname] [-failed] [-sortcol <col>[,<dir>]]
- showport -sfp [-d] [-ddm] [-failed] [-sortcol <col>[,<dir>]]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-i

Show hardware and connection information.

-c

Displays all devices connected to each loop (by position on the loop). Position 0 is the cage connected directly to the node on this loop.

Position n is the (n + 1) cage on the loop. Thus a “pos” value of 1 means this cage is the second cage away from the node on the loop. Example:

Node --> 0th cage --> 1st cage --> 2nd cage --> 3rd cage

-par

Displays a parameter listing such as the configured data rate of a port and the maximum data rate that the card supports.

-rc

Displays information that is specific to the Remote Copy ports.

-rcfc

Displays information that is specific to the Fibre Channel Remote Copy ports.

`-rcip`

Displays information specific to the Ethernet Remote Copy ports.

`-iscsi`

Displays information about iSCSI ports.

`-iscsiname`

Displays iSCSI names associated with iSCSI ports.

`-sfp`

Displays information about the SFPs attached to ports.

`-ddm`

Displays information about the SFPs DDM. This option must be used with the `-sfp` option.

`-d`

Displays detailed information about the SFPs attached to ports. This option is used with the `-sfp` option.

`-failed`

Show only failed ports.

`-sortcol <col>[, <dir>][:<col>[, <dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. In addition, you can optionally specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:) and rows that have the same earlier columns will be sorted by the values in the later columns.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about all ports in the system:

```
cli% showport
N:S:P      Mode      State ----Node_WWN---- -Port_WWN/HW_Addr-  Type
0:0:1 initiator ready 2FF70002AC00000A 20010002AC00000A disk
0:0:2 initiator ready 2FF70002AC00000A 20020002AC00000A disk
0:0:3 initiator ready 2FF70002AC00000A 20030002AC00000A disk
0:0:4 initiator loss_sync 2FF70002AC00000A 20040002AC00000A free
0:2:1 initiator ready 2FF70002AC00000A 20210002AC00000A host
0:2:2 target ready 2FF70002AC00000A 20220002AC00000A host
0:4:1 peer offline - 0002B3A99F7E rcip
0:5:1 initiator loss_sync 2FF70002AC00000A 20510002AC00000A free
0:5:2 initiator loss_sync 2FF70002AC00000A 20520002AC00000A free
1:0:1 initiator ready 2FF70002AC00000A 21010002AC00000A disk
1:0:2 initiator ready 2FF70002AC00000A 21020002AC00000A disk
1:0:3 initiator ready 2FF70002AC00000A 21030002AC00000A free
1:0:4 initiator loss_sync 2FF70002AC00000A 21040002AC00000A free
1:2:1 initiator ready 2FF70002AC00000A 21210002AC00000A host
1:2:2 initiator ready 2FF70002AC00000A 21220002AC00000A disk
1:3:1 target ready - 00C0DD077977 iscsi
1:3:2 target loss_sync - 00C0DD077979 iscsi
1:4:1 peer offline - 0002B3BCE77D rcip
1:5:1 target ready 2FF70002AC00000A 21510002AC00000A host
1:5:2 target loss_sync 2FF70002AC00000A 21520002AC00000A free
```

The columns in the previous example are identified as follows:

- N:S:P. The physical position of the port, in the syntax node:slot:port.
- Mode. Indicates whether the port is an initiator or a target. Initiators connect to disks (default) and target ports connect to hosts or fabrics. A target port that has yet to be initialized by the system appears as *suspended*. Ethernet ports use *peer* mode.
- State. State of the port. Possible values vary according to whether the port is an Ethernet or Fibre Channel port.
 - ◆ ready. The port is online and ready for use.
 - ◆ loss_sync. The port is not physically connected to anything.
 - ◆ config_wait. Firmware has yet to be initialized.
 - ◆ login_wait. Fibre Channel adapter is attempting port and process logins with all loop ports.
 - ◆ error. Fibre Channel adapter has experienced an unrecoverable error.

- ◆ `non_participate`. Port is logically isolated from the Fibre Channel loop.
- ◆ `offline`. The port is offline.
- ◆ `pending_reset`. A reset of the port has been scheduled, but not yet completed.
- `Node_WWN`. The WWN that belongs to the controller node identified in the N:S:P column.
- `Port_WWN/HW_Addr`. The WWN that belongs to the controller node port identified in the N:S:P column.
- `Type`. Indicates the port connection type.
 - ◆ `host`. Port is connected to hosts. This port can also be used for Remote Copy over IP (RCIP).
 - ◆ `disk`. Port is connected to disks.
 - ◆ `free`. Port is not connected.

The following example displays hardware and connection information about the ports' Fibre Channel settings:

```
cli% showport -i
N:S:P Brand Model Rev Firmware Serial
1:2:1 3PAR FC044X 08 1.02.N.5 00981760001d6187
1:2:2 3PAR FC044X 08 1.02.N.5 00981760001d6187
1:2:3 3PAR FC044X 08 1.02.N.5 00981760001d6187
1:2:4 3PAR FC044X 08 1.02.N.5 00981760001d6187
```

The following example displays all devices connected to each port and information about the ports' Fibre Channel settings:

```
cli% showport -c
N:S:P Mode Device Pos Config Topology Rate Cls Mode_change
1:2:1 initiator cage4 0 valid private_loop 2Gbps 3 allowed
1:2:2 initiator cage5 0 valid private_loop 2Gbps 3 allowed
1:2:3 initiator cage7 0 valid private_loop 2Gbps 3 allowed
1:2:4 initiator cage6 0 valid private_loop 2Gbps 3 allowed
```

The columns in the previous example are identified as follows:

- `N:S:P`. The physical position of the port, in the syntax `node:slot:port`.

- **Mode.** Indicates whether the port is an initiator or a target. Initiators connect to disks (default) and target ports connect to hosts or fabrics. A target port that has yet to be initialized by the system appears as suspended.
- **Device.** The device connected to the port, for example cage0.
- **Pos.** The position of the device, 0 or 1.
- **Config.** The validity of the port configuration. Values are valid or invalid.
- **Topology.** The link topology. Valid values are `private_loop`, `public_loop`, `point_to_point`, and `fabric`.
- **Rate.** Data transfer rate between the port and a host or a disk. Values can be 1Gbps, 2Gbps, 4Gbps, or n/a.
- **Cls.** The Fibre Channel class of the port., either 2 or 3.
- **Mode_change.** Indicates whether a port mode change is allowed or prohibited.

The following example displays each system ports' configuration:

```
cli% showport -par
N:S:P ConnType CfgRate MaxRate Class2 VCN ---Persona--- IntCoal
0:0:1 loop auto 2Gbps disable enabled (0) disk, DC enabled
0:0:2 loop auto 2Gbps disable enabled (0) disk, DC enabled
0:1:1 eth 1Gbps 1Gbps n/a n/a unknown n/a
0:1:1 eth n/a 1Gbps n/a n/a unknown n/a
0:2:1 eth auto 1Gbps n/a n/a unknown n/a
0:2:2 eth auto 1Gbps n/a n/a unknown n/a
0:3:1 loop auto 2Gbps disable enabled (0) disk, DC enabled
0:3:2 loop auto 2Gbps disable enabled (0) disk, DC enabled
1:0:1 loop auto 2Gbps disable enabled (0) disk, DC enabled
1:0:2 loop auto 2Gbps disable enabled (0) disk, DC enabled
1:2:1 eth 1Gbps 1Gbps n/a n/a unknown n/a
1:2:1 eth n/a 1Gbps n/a n/a unknown n/a
1:3:1 loop auto 2Gbps disable enabled (0) disk, DC enabled
1:3:2 loop auto 2Gbps disable enabled (0) disk, DC enabled
```

The columns in the previous example are identified as follows:

- **N:S:P.** The physical position of the port, in the syntax `node:slot:port`.
- **ConnType.** Indicates the type of connection configured for the port; `loop` for loop, `point` for point-to-point, or `lp` for loop or point-to-point.
- **CfgRate.** The configurable bit rate of data transfer between the port and a host or a disk; either `auto`, `1Gbps`, `2Gbps`, or `4Gbps`.

- **MaxRate.** Indicates the maximum bit rate of transfer between the HBA and the host or disk.
- **Class2.** Identifies whether class 2 is enabled (ack0 or ack1) or disabled.
- **VCN.** VLUN State Change Notification support setting. Valid values are n/a, enabled or disabled. When enabled and in public loop or fabric topology, a Registered State Change Notification (RSCN) message is issued to the fabric controller whenever a VLUN is created or removed.
- **Persona.** Indicates the port persona setting. See [Table 10-1 on page 10.15](#) for a list of all port persona settings and values. An asterisk(*) to the left indicates the persona cannot be trusted because one or more underlying attributes have been changed.
- **IntCoal.** Indicates whether the interrupt coalesce setting is Enabled or Disabled.

The following example displays information about all Remote Copy ports:

```
cli% showport -rc
N:S:P State          HwAddr      Rate Type
5:3:2 ready 25320002AC000006 2Gbps rcip
4:1:1 ready 24110002AC000006 2Gbps rcip
0:5:1 ready 0002B39B2013 100Mbps rcip
```

The columns in the previous example are identified as follows:

- **N:S:P.** The physical position of the port, in the syntax node:slot:port.
- **State.** State of the port.
 - ◆ **ready.** The port is online and ready for use.
 - ◆ **loss_sync.** The port is not physically connected to anything.
 - ◆ **config_wait.** Firmware has yet to be initialized.
 - ◆ **login_wait.** Fibre Channel adapter is attempting port and process logins with all loop ports.
 - ◆ **error.** Fibre Channel adapter has experienced an unrecoverable error.
 - ◆ **non_participate.** Port is logically isolated from the Fibre Channel loop.
 - ◆ **offline.** The port is offline.
- **HwAddr.** A unique identifier of the port hardware used for Remote Copy connection. For an RCIP port, it is the MAC address of the port.

- Rate. Data transfer rate (bitrate) for the Remote Copy interface.
- Type. Indicates the port connection type.
 - ◆ rcip. Port is used for Remote Copy over IP (RCIP).

The following example displays information about RCIP ports:

```
cli% showport -rcip
N:S:P   State ---HwAddr--- IPAddr Netmask Gateway MTU Rate Duplex AutoNeg
0:1:1   offline 000423C21B72    -      -      -      - n/a   n/a   n/a
0:1:1   offline 000423C21B73    -      -      -      - n/a   n/a   n/a
1:2:1   offline 000423ADE95E    -      -      -      - n/a   n/a   n/a
1:2:1   offline 000423ADE95F    -      -      -      - n/a   n/a   n/a
```

The columns in the previous example are identified as follows:

- N:S:P. The physical position of the port, in the syntax node:slot:port.
- State. State of the port.
 - ◆ ready. The port is online and ready for use.
 - ◆ loss_sync. The port is not physically connected to anything.
 - ◆ config_wait. Firmware has yet to be initialized.
 - ◆ login_wait. Fibre Channel adapter is attempting port and process logins with all loop ports.
 - ◆ error. Fibre Channel adapter has experienced an unrecoverable error.
 - ◆ non_participate. Port is logically isolated from the Fibre Channel loop.
 - ◆ offline. The port is offline.
- HwAddr. A unique identifier of the port hardware used for Remote Copy connection. For an RCIP port, it is the MAC address of the port.
- IPAddr. The IP address of the Remote Copy interface.
- Netmask. Netmask for the Ethernet port.
- Gateway. Gateway address for the Remote Copy interface.
- MTU. Maximum Transfer Unit (MTU) size for the specified Remote Copy interface (default is 1500). The largest supported value is 9000 and the smallest is 100.

- **Rate.** Data transfer rate for the Remote Copy interface.
- **Duplex.** Values can be either Full or Half.
- **AutoNeg.**

The following example displays information about iSCSI ports:

```
cli% showport -iscsi
N:S:P State      IPAddr      Netmask      Gateway TPGT  MTU  Rate DHCP iSNS_Primary iSNS_Secondary iSNS_Port
1:3:1 ready      192.168.9.163 255.255.255.0 192.168.9.1 131 1500 1Gbps 0 0.0.0.0 0.0.0.0 3205
1:3:2 loss_sync  0.0.0.0      0.0.0.0      0.0.0.0 132 1500 n/a 0 0.0.0.0 0.0.0.0 3205
```

The following example displays information about iSCSI names associated with iSCSI ports:

```
cli% showport -iscsiname
N:S:P IPAddr -----iSCSI_Name-----
1:3:1 0.0.0.0 iqn.2000-05.com.3pardata:21310002ac00000a
1:3:2 0.0.0.0 iqn.2000-05.com.3pardata:21320002ac00000a
```

The following examples display both standard and detailed information about SFPs attached to ports:

```
cli% showport -sfp
N:S:P -State- -Manufacturer- MaxSpeed(Gbps) TXDisable TXFault RXLoss DDM
0:0:1 OK      FINISAR_CORP.      2.10 No      No      No      Yes
0:0:2 OK      FINISAR_CORP.      2.10 No      No      Yes     Yes
0:3:2 OK      SIGMA-LINKS        2.10 No      No      Yes     Yes
1:0:1 OK      FINISAR_CORP.      2.10 No      No      No      Yes
1:0:2 OK      FINISAR_CORP.      2.10 No      No      Yes     Yes
cli%

root@enodea5:~# showport -sfp -d
-----Port 0:0:2-----
N:S:P      : 0:0:2
State      : Degraded
Manufacturer : PICOLIGHT
Part Number : PL-XPL-VE-S24-31
Serial Number : 425EF1E6
Revision   : N/A
MaxSpeed(Gbps): 2.10
Qualified  : No
TX Disable : --
TX Fault   : --
RX Loss    : --
RX Power Low : No
DDM Support : No

-----Port 1:3:1-----
N:S:P      : 1:3:1
State      : OK
Manufacturer : FINISAR_CORP.
Part Number : FTLF8519P2BNL
Serial Number : U76031S
Revision   : A
MaxSpeed(Gbps): 2.10
Qualified  : Yes
TX Disable : No
TX Fault   : No
RX Loss    : No
RX Power Low : No
DDM Support : Yes
```

NOTES

See [Restrictions](#) on page 10.17 for important information regarding port modes and port pair protection.

COMMAND

showportarp

DESCRIPTION

The `showportarp` command shows the ARP table for iSCSI ports in the system.

SYNTAX

`showportarp [<node>:<slot>:<port>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

`[<node>:<slot>:<port>]`

Specifies the port for which information about devices on that port are displayed.

`node`

Specifies the node using a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the specified node using a number from 0 through 5.

`port`

Specifies the Fibre Channel port number of the PCI card in the specified PCI bus slot using 1 to 4.

If `<node>:<slot>:<port>` is not specified, the ARP table for all iSCSI ports is displayed.

EXAMPLES

The following example displays the ARP table for the iSCSI ports in the system.

```
cli% showportarp
N:S:P      HwAddr      IPAddr  Time(mins)
1:3:1  00E07BF8BF87    192.168.9.1      0
1:3:1  001143CD039A    192.168.8.151    0
```

In the example output above:

- `HwAddr`. The MAC address of a remote host discovered through the MAC address resolution process.
- `IPAddr`. The IP address of the remote host to which the port is attempting to connect.
- `Time (mins)`. The amount of time (in minutes) that the entry has been in the table. When the entry has been in the table for 20 minutes, it is removed.

NOTES

None.

COMMAND

`showportdev`

DESCRIPTION

The `showportdev` command displays detailed information about either all devices or only arbitrated loop devices on a Fibre Channel port.

SYNTAX

`showportdev loop|all|ns <node:slot:port>`

AUTHORITY

Super, Service, Edit, Browse

SUBCOMMANDS

`loop|all|ns`

`loop`

Specifies that information is returned for arbitrated loop devices that are attached to the specified port. If this subcommand is not specified, then the `all` subcommand must be specified on the command line.

`all`

Specifies that information for all devices attached to the specified port is returned. If this subcommand is not specified, then the `loop` subcommand must be specified on the command line.

`ns`

Specifies that information for the switch name server database is returned. This subcommand is only for use with fabric-attached topologies.

OPTIONS

None.

SPECIFIERS

`<node:slot:port>`

Specifies the port for which information about devices on that port are displayed.

`node`

Specifies the node using a number from 0 through 7.

slot

Specifies the PCI bus slot in the specified node using a number from 0 through 5.

port

Specifies the Fibre Channel port number of the PCI card in the specified PCI bus slot using 1 to 4.

RESTRICTIONS

The `loop` subcommand is functional only in a private loop topology.

EXAMPLES

The following example displays information about all devices attached to Fibre Channel port 1:0:2:

```
cli% showportdev all 1:0:2
```

PtId	LpID	Hadr	Node_WWN	Port_WWN	ftrs	svpm	bbct	flen
0xd3	0x0c	0x00	2FF70002AC000013	21020002AC000013	0x8800	0x0022	n/a	0x0800
0xef	0x00	0xef	2000000087002078	2200000087002078	0x8800	0x0012	n/a	0x0800
0xe8	0x01	0xe8	2000000087002515	2200000087002515	0x8800	0x0012	n/a	0x0800
0xe4	0x02	0xe4	20000000870024CB	22000000870024CB	0x8800	0x0012	n/a	0x0800
0xe2	0x03	0xe2	20000000870028AE	22000000870028AE	0x8800	0x0012	n/a	0x0800
0xe1	0x04	0xe1	2000000087002224	2200000087002224	0x8800	0x0012	n/a	0x0800
0xe0	0x05	0xe0	2000000087003019	2200000087003019	0x8800	0x0012	n/a	0x0800
0xdc	0x06	0xdc	5000087000190E9F	5000087000190EA1	0x8800	0x0012	n/a	0x0800
0xda	0x07	0xda	2000000087002397	2200000087002397	0x8800	0x0012	n/a	0x0800

The columns in the previous example are identified as follows:

- PtId. The ID of the port.
- LpID. The ID of the loop.
- Hadr. The hard address.
- Node_WWN. The WWN of the node.
- Port_WWN. The WWN of the port.
- ftrs. Common features that are located in PLOGI_ACC common word 1, bits 31-16.
- svpm. The service parameters that are located in PRLI word 3, bits 15-0.
- bbct. The buffer to buffer credit that is located in PLOGI common word 0, bits 15-0.

- `flen`. The maximum received frame length that is located in `PLOGI_ACC` class-3 word 1, bits 15-0.

NOTES

None.

COMMAND

showportisns

DESCRIPTION

The `showportisns` command shows iSNS host information for iSCSI ports in the system.

SYNTAX

`showportisns [<node>:<slot>:<port>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

`[<node>:<slot>:<port>]`

Specifies the port for which information about devices on that port are displayed.

`node`

Specifies the node using a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the specified node using a number from 0 through 5.

`port`

Specifies the Fibre Channel port number of the PCI card in the specified PCI bus slot using 1 to 4.

If not specified, iSNS host information for all iSCSI ports is displayed.

EXAMPLES

The following example displays hosts discovered by the iSCSI port from the iSNS server in the system.

```
cli% showportisns
N:S:P  Host_IPAddr  -----Host_iSCSI_Name-----          Host_alias
1:3:1  192.168.2.181          ign.1991-05.com.microsoft:pe750-07 <MS SW iSCSI Initiator>
1:3:1  192.168.17.33  ign.1991-05.com.microsoft:dt-ashok-xp.hq.3pardata.com <MS SW iSCSI Initiator>
```


Where

- `N:S:P`. Represents the node:slot:port of the iSCSI port.
- `Host_IPAddr`. The IP address of a remote host.
- `Host_iSCSI_Name`. Represents the iSCSI name of the host.
- `Host_alias`. Represents the iSCSI alias of the host.

NOTES

None.

COMMAND

`showportlesb`

DESCRIPTION

The `showportlesb` command displays Fibre Channel Link Error Status Block (LESB) counters (the number of errors accumulated for Fibre Channel devices). The LESB is composed of six counters that can measure Fibre Channel signal integrity or status.

SYNTAX

The syntax for the `showportlesb` command can include one of the following arguments:

- `showportlesb reset`
- `showportlesb compare [all|<node:slot:port>]`
- `showportlesb single|both <node:slot:port>`
- `showportlesb hist [options <arg>] <node:slot:port>`
- `showportlesb diffhist [options <arg>] <node:slot:port>`

AUTHORITY

Super, Service, Edit, Browse

SUBCOMMANDS

`reset`

Specifies that internal 3PAR counters are checked against current LESB counters and event alerts are raised as necessary. All ports of the internal 3PAR counters are reset.

`compare`

Specifies that internal 3PAR counters are checked against current LESB counters.

`single|both`

The `single` subcommand specifies that counters for the indicated port are displayed. The `both` subcommand specifies that counters for both ports, if the device is dual ported, are displayed.

`hist`

Displays the history of LESB raw counters on the specified port of loop devices.

diffhist

Displays differences between historical samples of LESB counters on the specified port of loop devices.

OPTIONS

`-startt <time>`

Specifies that samples taken of LESB counters should commence after the indicated time (<time>). Time can be specified in hours or as a specific date. When specifying the time in hours, the following formats can be used:

- ◆ `hh[:mm[:ss]]`, where `hh` is the hour, `mm` is the minute (optional), and `ss` is the second (optional).
- ◆ `hhmm`, where `hh` is interpreted as a 24 hour clock.

When specifying the time as a date, the following formats can be used:

- ◆ `mm/dd[/yy]`, where `mm` is the month, `dd` is the day, and `yy` is the year (optional).
- ◆ `monthname dd[,yy]`, where `dd` is the day and `yy` is the year (optional).
- ◆ `dd monthname [yy]`, where `dd` is the day and `yy` is the year (optional).
- ◆ `yy-mm-dd`, where `yy` is the year, `mm` is the month, and `dd` is the day.

`-endt <time>`

Specifies that samples taken of LESB counters cease after the indicated time (<time>). Time can be specified in hours or as a specific date. When specifying in hours, the following formats can be used:

- ◆ `hh[:mm[:ss]]`, where `hh` is the hour, `mm` is the minute (optional), and `ss` is the second (optional).
- ◆ `hhmm`, where `hh` is interpreted as a 24 hour clock.

When specifying as a date, the following formats can be used:

- ◆ `mm/dd[/yy]`, where `mm` is the month, `dd` is the day, and `yy` is the year (optional).
- ◆ `monthname dd[,yy]`, where `dd` is the day and `yy` is the year (optional).
- ◆ `dd monthname [yy]`, where `dd` is the day and `yy` is the year (optional).
- ◆ `yy-mm-dd`, where `yy` is the year, `mm` is the month, and `dd` is the day.

SPECIFIERS

<node:slot:port>

Specifies a port. This specifier is required for the `single`, `both`, `hist`, and `diffhist` subcommands, and optional for the `compare` subcommand. If this specifier is not used with the `compare` subcommand, then all ports are compared. The port is specified as follows:

`node`

Specifies the node using a number from 0 through 7.

`slot`

Specifies the PCI bus slot in the specified node using a number from 0 through 5.

`port`

Specifies the port number on the Fibre Channel card from 1 through 4.

RESTRICTIONS

None.

EXAMPLES

The following example displays the reset of internal counters and ports:

```
cli% showportlesb reset
LESB reset completed
```

The following example displays the comparison of all ports:

```
cli% showportlesb compare
Port <1:0:1>

Loop <1:0:1>      Time since last save: 0:00:28
  ID ALPA LinkFail LossSync LossSig PrimSeq InvWord InvCRC
<1:0:1> 0xef      1      19      19      0      0      0
pd7    0x6d      1       5       0      0     270     0
pd6    0x72      1       4       0      0     524     0
pd5    0x73      1       4       0      0     335     0
pd4    0x76      1       4       0      0     334     0
pd3    0x79      1       4       0      0     401     0
pd2    0x80      1       4       0      0     344     0
pd1    0x81      1       4       0      0     270     0
pd0    0x88      1       4       0      0     401     0
Port <0:0:1>

Loop <0:0:1>      Time since last save: 0:00:28
  ID ALPA LinkFail LossSync LossSig PrimSeq InvWord InvCRC
<0:0:1> 0xef      1      19      19      0      0      0
pd7    0x6d      1       5       0      0     465     0
pd6    0x72      1       5       0      0     890     0
pd5    0x73      1       4       0      0     969     0
pd4    0x76      1       5       0      0     761     0
pd3    0x79      1       4       0      0     815     0
pd2    0x80      1       4       0      0     925     0
pd1    0x81      1       7       0      0    3283     0
pd0    0x88      1     258       0      0     269     0

LESB compare completed
```

The following example displays the counters for port 1:0:2:

```
cli% showportlesb single 1:0:2
```

	ID	ALPA	LinkFail	LossSync	LossSig	PrimSeq	InvWord	InvCRC
cage1		0x1	3	4	0	0	755	0
pd12		0xef	1245	39201	0	0	156804	0
pd13		0xe8	1	1608	0	0	6432	0
pd14		0xe4	1	1586	0	0	6344	0
pd15		0xe2	1	1588	0	0	6352	0
pd16		0xe1	2	5088	0	0	20352	0
pd17		0xe0	1	1596	0	0	6384	0
pd18		0xdc	1	1595	0	0	6380	0
pd19		0xda	1	1596	0	0	6384	0
pd20		0xd9	2	5047	0	0	20188	0
pd21		0xd6	1	1604	0	0	6416	0
pd22		0xd5	1	1609	0	0	6436	0
pd23		0xd4	1	1616	0	0	6464	0
<1:0:2>		0xd3	0	1	1	0	0	0
cage0		0x18	1	165	0	0	26	0
pd8		0x67	2	865794	0	0	3463176	0
pd9		0x66	1	63932	0	0	255728	0
pd10		0x65	1	61572	0	0	246288	0
pd11		0x63	1	61525	0	0	246100	0
pd4		0x6c	2	67006	0	0	268024	0
pd5		0x6b	1	63474	0	0	253896	0
pd6		0x6a	1	63471	0	0	253884	0
pd7		0x69	1	63598	0	0	254392	0
pd0		0x72	2	65863	0	0	263452	0
pd1		0x71	1	64024	0	0	256096	0
pd2		0x6e	1	63942	0	0	255768	0
pd3		0x6d	1	63897	0	0	255588	0

The columns in the previous example are identified as follows:

- ID. The device ID.
- ALPA. Arbitrated Loop Physical Address.
- LinkFail. The Fibre Channel loop either has a loss of signal (electrical or optical) or a loss of synchronization that is greater than the timeout period.
- LossSync. Fibre Channel data is not valid though there is a signal (electrical or optical).
- LossSig. Loss of signal (electrical or optical) to the receiver port of a Fibre Channel node.

- **PrimSeq.** Primitive Sequence Protocol Error. There were errors during the transmission of a Fibre Channel primitive sequence. This might indicate an error during the loop recovery or initialization.
- **InvWord.** Invalid Transmission Word. Illegal Fibre Channel transmission word received.
- **InvCRC.** Invalid Cyclical Redundancy Check. Data corruption in the Fibre Channel frame.

NOTES

- If the `both` subcommand is specified, the resulting output text is greater than 80 columns wide.
- Internal 3PAR counters are checked every 10 minutes.
- Each LESB counter is a 32-bit, unsigned integer.
- LESB counters on Fibre Channel devices cannot be reset.

COMMAND

`showrcopy`

DESCRIPTION

The `showrcopy` command displays details of the Remote Copy configuration.

SYNTAX

The syntax for the `showrcopy` command can be one of the following:

- `showrcopy [options <arg>] [links]`
- `showrcopy [options <arg>] [groups [<name_or_pattern>]]`
- `showrcopy [options <arg>] [targets [<name_or_pattern>]]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d`

Displays more detailed configuration information.

`-domain <domainname_or_pattern>[, <domainname_or_pattern>...]`

Shows only Remote Copy links whose virtual volumes are in domains with names that match one or more of the specified domain name or pattern. This option does not allow listing objects within a domain of which the user is not a member.

SPECIFIERS

`links`

Specifies all Remote Copy links.

`groups [<name>]`

Specifies either all Remote Copy volume groups or a specific Remote Copy volume group by name.

`targets [<name>]`

Specifies either all target definitions or a specific target definition by name.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example displays output from the `showrcopy` command:

```
cli% showrcopy
Remote Copy System Information
Status: Started, Normal

Target Information

Name      ID Type Status Options Policy
InServ2 9  IP   ready          mirror_config

Link Information

Target  Node Address      Status Options
InServ2 0    10.100.33.11 Up
InServ2 1    10.101.33.11 Up
receive 0    10.100.33.11 Up
receive 1    10.101.33.11 Up

Group Information

Name          Target      Status      Role      Mode      Options
sync_group_1 InServ2      Started     Primary   Sync
  LocalVV      ID    RemoteVV   ID    SyncStatus  LastSyncTime
  localvv.0    391  remotevv.0  351  Syncing (25%) Thu Dec 14 17:37:40 PST 2006
  localvv.1    392  remotevv.1  352  Syncing (40%) Thu Dec 14 17:37:40 PST 2006

Name          Target      Status      Role      Mode      Options
sync_group_2.r11 InServ2      Started     Secondary Sync
  LocalVV      ID    RemoteVV   ID    SyncStatus  LastSyncTime
  remotevv.0    401  localvv.0  361  Syncing      NA
  remotevv.1    402  localvv.1  362  Syncing      NA
```

The following values can appear in the Link Information Status field:

- Not Started. Link is not started or is being started, such as when its node is down or Remote Copy is stopped (through the `stoprcopy` command).
- Down. Link is down and will attempt to restart.
- Up. Link is up and running.

The following values can appear in the Group Information Syncstatus field:

- New. Volume is configured, but has not yet been started.
- Syncing. Volume is currently synchronizing.
- NotSynced. The volume is not synchronized, likely the result of an initial sync failure or some other failure.
- Stopped. The volume was synced the last time the group was started, but the group is currently stopped. There might be writes that have not been sent to the secondary site.
- Stale. Volume was previously synchronized, but a previous synchronization attempt failed. Thus, the secondary has a valid copy, just not a valid copy from the last synchronization attempt.

The following example displays output from the `showrcopy groups <pat>` command, where `<pat>` is specified as `b*` and `l*`:

```
cli% showrcopy groups b* l*

Remote Copy System Information
Status: Started, Normal

Group Information

Name          Target      Status  Role      Mode      Options
bart          bf_mirror  Started Primary    Periodic  Last-Sync Tue Jul 18 14:12:59
PDT 2006 , Period 30m
  LocalVV      ID    RemoteVV  ID  SyncStatus  LastSyncTime
  bart-tp-ws   9    bart-ws   3924 Synced      Tue Jul 18 14:13:09 PDT 2006

Name          Target      Status  Role      Mode      Options
lisa          bf_mirror  Started Primary    Periodic  Last-Sync Tue Jul 18 14:09:44
PDT 2006 , Period 30m, over_per_alert
  LocalVV      ID    RemoteVV  ID  SyncStatus  LastSyncTime
  lisa-ws      2    lisa-ws   3922 Synced      Tue Jul 18 14:10:32 PDT 2006

cli%
```

In the example above:

- Name. The name of the group.
- Target. The target to which the group is mirrored.
- Status. The following values can appear in the group `Status` field:
 - ◆ New. Group that has not yet been started.

- ◆ Starting. Currently attempting to start the group.
- ◆ Started. Group is started (has Remote Copy running).
- ◆ Stopped. Group was stopped.
- Role. The role of the group as either Primary or Secondary.
- Mode. The mode of the group as either Periodic or Synchronous.
- Options. The options set for the group.
- LocalVV and ID. The name and ID of this system.
- RemoteVV and ID. The name and ID of the target system.
- SyncStatus. The following values can appear in the SyncStatus field:
 - ◆ New. Volume is configured as a primary volume, but has not yet been started.
 - ◆ Remote. Volume is configured as a secondary volume, but has not yet been started.
 - ◆ Syncing. Volume is currently synchronizing.
 - ◆ Synced. The primary and secondary volumes are in sync.
 - ◆ NotSynced. The volume is not synchronized, likely the result of an initial sync failure or some other failure.
 - ◆ Stopped. The volumes were previously synchronized, but may be out of sync due to a group being stopped.
 - ◆ Stale. Volume was previously synchronized, but a previous synchronization attempt failed. Thus the secondary has a valid copy, just not a valid copy from the last synchronization attempt.
- LastSyncTime. The time at which the last volume synchronization was completed.

NOTES

- If the `showrcopy` command is used with no specifiers, all configuration information is displayed.
- The `showrcopy` command also displays the group's domain names if the global `-listdom` option is used or if the `TPDLISTDOM` environment variable is set.
- If `showrcopy link|group|target` is used without specifying a name, information for all links, groups, or targets is displayed.

- To limit the performance impact of Remote Copy on the rest of the InServ storage system, the number of volumes that are concurrently synchronizing is limited to 20 volumes.

This limit is not user-configurable and applies to the initial synchronization as well as subsequent resynchronizations for synchronous as well as asynchronous periodic groups. For example, if there are 30 volumes in asynchronous periodic mode that are being resynchronized, you might notice that 10 volumes do not start synchronizing until the first 20 have completed. This can be seen by monitoring the `Sync%` column of the `showrcopy` command output.

COMMAND

`showrcrtransport`

DESCRIPTION

The `showrcrtransport` command shows status and information about end-to-end transport for Remote Copy in the system.

SYNTAX

`showrcrtransport [options]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-rcip`

Show information about Ethernet end-to-end transport.

`-rcfc`

Show information about Fibre Channel end-end-transport.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays status and information about the end-to-end transport for all Remote Copy configured ports:

```
cli% showrcrtransport
N:S:P Peer_Address      Address State Type
0:5:1      - 10.100.5.87  new rcip
1:5:1      - 10.101.6.87  new rcip
```

The columns in the previous example are identified as follows:

- **N:S:P.** The physical position of the port, in the syntax `node:slot:port`.

- **Peer_Address.** IP address of the Remote Copy storage server port connected to this Remote Copy port.
- **Address.** IP address of the Remote Copy storage server port.
- **State.** Remote copy end-to-end transport state. Can include one of the following results:
 - ◆ **new.** Configuration is not completed on this port.
 - ◆ **incomplete.** Configuration is not yet completed on the peer port.
 - ◆ **ready.** Configuration is completed on this port and the peer port; transport is ready for use.
 - ◆ **missing.** A configured transport was disconnected.
- **Type.** Indicates the port connection type.
 - ◆ **rcip.** Port is used for Remote Copy over IP (RCIP).
 - ◆ **rcfc.** Port is used for Remote Copy over FC (RCFC).

The following example displays status and information about the end-to-end transport for RCIP ports:

```
cli% showretransport -rcip
```

N:S:P	State	HwAddr	IPAddress	PeerIPAddress	Netmask	Gateway	MTU	Rate	Duplex
0:1:1	new	000423C21B72	192.168.25.226	-	255.255.255.0	-	1500	1Gbps	Full
0:1:1	new	000423C21B73	192.168.25.226	-	255.255.255.0	-	1500	n/a	Half
1:2:1	new	000423ADE95E	192.168.25.227	-	255.255.255.0	-	1500	1Gbps	Full
1:2:1	new	000423ADE95F	192.168.25.227	-	255.255.255.0	-	1500	n/a	Half

The columns in the previous example are identified as follows:

- **N:S:P.** The physical position of the port, in the syntax `node:slot:port`.
- **State.** Remote copy end-to-end transport state. Can include one of the following results:
 - ◆ **new.** Configuration is not completed on this port.
 - ◆ **incomplete.** Configuration is not yet completed on the peer port.
 - ◆ **ready.** Configuration is completed on this port and the peer port; transport is ready for use.
 - ◆ **missing.** A configured transport was disconnected.
- **HwAddr.** Hardware address of the Ethernet port indicated in the **N:S:P** column.

- **IPAddress.** IP address of the Ethernet port indicated in the `N:S:P` column.
- **PeerIPAddress.** IP address of the peer Ethernet port to which the port indicated in the `N:S:P` column is connected.
- **Netmask.** Netmask for the IP address.
- **Gateway.** Address of the gateway.
- **MTU.** Maximum Transfer Unit (MTU) size for the specified Remote Copy interface (default is 1500). The largest supported value is 9000 and the smallest is 100.
- **Rate.** Actual bit rate of the port indicated in the `N:S:P` column.
- **Duplex.** Values can be either `Full` or `Half`.

NOTES

None.

COMMAND

`showrsv`

DESCRIPTION

The `showrsv` command displays SCSI reservation and registration information for VLUNs bound for a specified port.

SYNTAX

`showrsv [options <arg>] [<VV_name>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-l <scsi3|scsi2>`

Specifies that either SCSI-3 persistent reservation or SCSI-2 reservation information is displayed. If this option is not specified, information about both SCSI-2 and SCSI-3 is displayed.

`-host <hostname>`

Displays reservation and registration information only for virtual volumes that are visible to a particular host.

SPECIFIERS

`[<VV_name>]`

Specifies the virtual volume name, using up to 31 characters.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about reservation and registration information for VLUNs bound with host name w2k_emx1_cisco.

```
cli% showrsv -host w2k_emx1_cisco
```

	VVname	Host	Owner	Port	ReservationType
w2k_clusterd.10	w2k_emx1_cisco	10000000C92B9909	1:3:1	SCSI-3(6)	
w2k_clusterd.11	w2k_emx1_cisco	10000000C92B9909	1:3:1	SCSI-3(6)	
w2k_clusterd.12	w2k_emx1_cisco	10000000C92B9909	1:3:1	SCSI-3(6)	
w2k_clusterd.13	w2k_emx1_cisco	10000000C92B9909	1:3:1	SCSI-3(6)	

The columns in the previous example are identified as follows:

- VVname. Name of volume exported on this port to the host in Host column.
- Host. Host name of the host connected to this port.
- Owner/Registrant. WWN of the host that has the reservation or registration.
- Port. Port name in N:S:P format.
- ReservationType. The type of reservation being established either SCSI-2 or SCSI-3. SCSI-3 reservations can be as follows:
 - ◆ 1. (Write exclusive). All read requests allowed. Write requests allowed for the reservation holder only.
 - ◆ 3. (Exclusive access). Read and write requests allowed for the reservation holder only.
 - ◆ 5. (Write exclusive-registrants only). All read requests allowed. Write requests allowed for registered initiators only.
 - ◆ 6. (Exclusive access-registrants only). Read and write requests allowed for registered initiators only.
 - ◆ 7. (Write exclusive-all registrants). All read requests allowed. Write requests allowed for registered initiators only.
 - ◆ 8. (Exclusive access-all registrants). Read and write requests allowed for registered initiators only.

NOTES

None.

COMMAND

showsnmppw

DESCRIPTION

The `showsnmppw` command displays the SNMP community string passwords.

SYNTAX

`showsnmppw [options]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-rw` | `-r` | `-w`

Specifies that the read/write (`-rw`), read-only (`-r`), or write-only (`-w`) password is displayed. If not specified, the read/write community string password is displayed.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays all SNMP passwords:

```
cli% showsnmppw  
[password]
```

EXIT STATUS

The following codes are returned indicating success or failure:

- 0 indicates that the trap manager list was retrieved and that the command was successful.
- 1 indicates that the command failed.

NOTES

SNMP passwords are registered using the `setsnmppw` command. See [setsnmppw](#) on page 21.61 for more information.

COMMAND

`showsnmpmgr`

DESCRIPTION

The `showsnmpmgr` command retrieves a list of registered SNMP software frameworks (managers) for receiving alerts (traps).

SYNTAX

`showsnmpmgr`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays a list of registered managers:

```
cli% showsnmpmgr
Host IP      Port
82.185.98.76 162
82.162.9.7   8004
```

In the example above:

`Host IP`. The trap manager's IP address.

`Port`. The trap manager's port number.

EXIT STATUS

The following codes are returned indicating success or failure:

- 0 indicates that the trap manager list was retrieved and that the command was successful.
- 1 indicates that the command failed.

NOTES

Managers are registered using the `addsnmpmgr` command. See [addsnmpmgr](#) on page 4.2 for additional information.

COMMAND

showspace

DESCRIPTION

The `showspace` command displays estimated free space for logical disk creation.

SYNTAX

`showspace [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

The following options are used to select the logical disk creation parameters used for space calculation:

`-cpg <CPG_name>|<pattern>`

Specifies that logical disk creation parameters are taken from CPGs that match the specified CPG name or pattern, indicated with a glob-style pattern (see [Glob-Style Pattern](#) on page 2.4 for more information). Multiple CPG names or patterns can be specified using a comma separated list, for example `cpg1,cpg2,cpg3`. Only the `-hist` option can be specified with the `-cpg` option.

`-hist`

Specifies that free space history over time for CPGs specified with the `-cpg` option is displayed. This option can only be used if the `-cpg` option is specified.

`-t r0|r1|r5`

Specifies the RAID type of the logical disk. Enter `r0` for RAID 0, `r1` for RAID 10, or `r5` for RAID 50. If no RAID type is specified, the default is `r1` (RAID 10).

`-ssz <size>`

Specifies the set size in terms of chunklets. Enter 1 for RAID 0, an integer from 2 through 4 for RAID 10, and an integer from 3 through 9 for RAID 50. If not specified, the default value for RAID 10 is 2 and the default value for RAID 50 is 4.

`-rs <size>`

Specifies the number of sets in a row using an integer from 1 through 2147483647. If not specified, no row limit is imposed.

`-ss <size_KB>`

Specifies the step size in kilobytes using 32, 64, 128, 256, or 512. If no value is entered, the step size defaults to 256 KB for RAID 10 and 128 KB for RAID 50.

`-ha port | cage | mag`

Specifies that RAID 10 or 50 can support a failure of a drive cage (`cage`) or drive magazine (`mag`). If `cage` is specified, chunklets from different drive cages are used within a RAID set. If `mag` is specified, chunklets from different drive magazines, but possibly the same drive cage, are used in a RAID set. The defaults for RAID 10 and RAID 50 are `cage`.

`-ch first | last`

Specifies the chunklet characteristics, either `first` (fastest chunklets) or `last` (slowest chunklets). If no argument is specified, the default characteristic is `first`.

`-p <pattern>`

Specifies a pattern for chunklets. Patterns are used to limit chunklets that are used for creating logical disks based on position or the port over which the drive is accessible. If no pattern is specified, the option defaults to all chunklets. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (`item`). Multiple nodes are separated with a single comma (1, 2, 3). A range of nodes is separated with a hyphen (0-7).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (`item`). Multiple slots are separated with a single comma (1, 2, 3). A range of slots is separated with a hyphen (0-7).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (`item`). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0-4).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (*item*). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0-3).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (*item*). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0-7).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (*item*). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0-3).

`-dk <item>`

Specifies one or more disks. Disks are identified by one or more integers (*item*). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0-3).

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>`

Specifies that physical disks identified by their device IDs are selected for virtual volume and logical disk creation. Device IDs can be specified in a comma-separated list. Issue the `showpd -i` command for a list of physical disk device IDs for use with the `-devid` option.

`-devtype <FC|NL>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline). Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks used must have the same device type.

`-rpm <speed>`

Specifies that disks must be of the indicated speed.

SPECIFIERS

None.

RESTRICTIONS

The `-cpg` and `-hist` options cannot be used with any other option on the command line.

EXAMPLES

The following example displays the estimated free space for a RAID 10 logical disk:

```
cli% showspace -t r1
              Estimated Space
RawFreeGB    UsableFreeGB
      280             140
```

NOTES

The space calculated is an estimate and not an exact figure.

COMMAND

showspare

DESCRIPTION

The `showspare` command displays information about chunklets in the system that are reserved for spares and previously free chunklets selected for spares by the system.

SYNTAX

showspare

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about spare chunklets on chunklets 53 through 56 on physical disk 4:

```
cli% showspare
PdId Chnk LdName          LdCh State  Usage  Media  Sp Cl  From  To
4    53  ronnie                0   normal  ld     valid   N  N   2:37  ---
4    54  james                 28   normal  ld     valid   N  N   0:29  ---
4    55  dio                  28   normal  ld     valid   N  N   0:32  ---
4    56  rocks                 0    normal  ld     valid   N  N   0:38  ---
```

The columns in the previous example are identified as follows:

- `PdId`. The physical disk on which the chunklets reside.
- `Chnk`. The chunklet number.
- `LdName`. The name of the logical disk that is using the spare chunklet.

- **LdCh.** The position of the chunklet on the logical disk.
- **State.** The state of the chunklet as identified by the kernel.
 - ◆ **logging.** I/O to the chunklet is written to the logging logical disk.
 - ◆ **playback.** Data is played back from the logging logical disks.
 - ◆ **passthru.** Chunklets do not process physical disk errors.
 - ◆ **preserved.** Any I/O to the chunklet is written to the preserved logical disks.
 - ◆ **preserved playback.** Data is played back from the preserved logical disks.
 - ◆ **stale.** The chunklet is not available for use because of a medium failure or a connectivity failure.
 - ◆ **normal.** The chunklet is available for use.
 - ◆ **normal,smag.** A servicemag operation is performed on the disks.
 - ◆ **none.** Chunklets were not used by any logical disk.
- **Usage.** Shows whether the spare chunklet is in use by a logical disk.
 - ◆ **available.** The chunklet is available for use as a spare or as a logical disk.
 - ◆ **ld.** The chunklet is in use by a logical disk.
 - ◆ **synch.** The chunklet is both the source and the target of a logical disk relocation operation (synchronizing the chunklet).
 - ◆ **cmprcl.** The system is completing the logical disk relocation operation.
 - ◆ **reldsrc.** Relocation source. The data has been moved to another chunklet.
 - ◆ **reltgt.** Relocation target. The data in the chunklet has been moved from another spare chunklet.
 - ◆ **abtrcl.** Abort relocation. The system is canceling the logical disk relocation operation.
- **Media.** The current status of the physical disk medium for the chunklet.
 - ◆ **valid.** The chunklet is available for use.
 - ◆ **failed.** The medium has encountered errors and is not available for use.
- **Sp.** The spare status of the chunklet; **Y** indicates the chunklet is reserved for spare, **N** indicates a previously free chunklet selected by the system as a spare.

- **Cl.** The clean status of the chunklet. **N** indicates that the chunklet is in-use. **Y** indicates that the chunklet is clean. **Cg** indicates that the chunklet is being cleaned.
- **From.** The initial location of the chunklet before relocation.
- **To.** The destination location of the chunklet during relocation.

NOTES

None.

COMMAND

showsys

DESCRIPTION

The `showsys` command displays an overview of the InServ Storage Server capacity and connectivity.

SYNTAX

`showsys [options]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d`

Specifies that more detailed information about the system is displayed.

`-param`

Specifies that the system parameters, including the `RawSpaceAlert` setting, are displayed. See [setsys](#) on page 21.68 for information on setting the `RawSpaceAlert` threshold.

`-fan`

Displays the system fan information.

`-space`

Displays the system capacity information in MB (1048576 bytes).

`-domainspace`

Displays the system capacity information broken down by domain in MB (1048576 bytes).

`-desc`

Displays the system descriptor properties.

`-devtype FC|NL`

Displays the system capacity information where the discs must have a device type string that matches the specified device type; either Fibre Channel (FC) or Nearline (NL). This option can only be issued with the `-space` option.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about an InServ Storage Server:

```
cli% showsys
```

ID	Name	Model	Serial	Nodes	Master	TotalCap	AllocCap	FreeCap	FailedCap	
15	s015	InServ	S200	1000015	2	0	1063424	208384	855040	0

In the previous example:

- ID. The system ID.
- Name. The system name.
- Model. The model type of the InServ server.
- Serial. The system serial number.
- Nodes. The number of nodes in the system.
- Master. The master node ID.
- TotalCap. The total system capacity in MB.
- AllocCap. The allocated system capacity in MB.
- FreeCap. The free system capacity in MB.
- Failed Cap. The failed system capacity in MB.

The following example displays the system descriptor properties of an InServ Storage Server:

```
cli% showsys -desc
-----System s36-----
System Name : Your Name
Location    : Your Facility Address
Owner       : Your Company Name
Contact     : Joe Admin
Comment     : Your Notes
```

The following example displays the system capacity in MB for an InServ Storage Server:

```
cli% showsys -space
-----System Capacity (MB)-----
Total Capacity           : 1063424
Allocated                : 208384
  Volumes                : 103937
    Base Volumes         : 4266
      User                : 4266
      Copy                : 0
      Admin               : 0
    CPGs (TPVVs & CPVVs) : 98304
      Copy                : 65536
      Used                : 0
      Unused              : 65536
      Admin               : 32768
      Used                : 0
      Unused              : 32768
    Unmapped             : 1367
  System                 : 104448
    Internal              : 104448
    Spare                 : 0
      Used                : 0
      Unused              : 0
  Free                   : 855040
    Initialized           : 855040
    Uninitialized         : 0
    Failed                : 0
```

The following example displays more detailed (`-d` option) information about the same storage server:

```
cli% showsys -d
-----General-----
System Name       :      S116
System Model      :    InServ S200
Serial Number     :    1000116
System ID         :         116
Number of Nodes   :         2
Master Node       :         0
Nodes Online      :        0,1
Nodes in Cluster  :        0,1

----System Capacity (MB)----
Total Capacity    :   411648
Allocated Capacity :   150272
Free Capacity     :   175616
Failed Capacity   :    85760

-----System Descriptors-----
Location          :
Owner             :
Contact           :
Comment           :
```

The following example shows system parameters (`-param` option) for an InServ Storage Server:

```
cli% showsys -param
System parameters from configured settings

---Parameter---      ---Value---
RawSpaceAlertFC      :              0
RawSpaceAlertNL      :              0
RemoteSyslog          :              1
RemoteSyslogHost      :    192.168.6.15
SparingAlgorithm      :      Minimal
```

NOTES

- See [setsys](#) on page 21.68 for information on setting the RawSpaceAlert threshold indicated by the Value column in the output for `showsys -param`.
- In the output for `showsys -param`, (from configured settings) indicates that the system parameters displayed have been successfully read from the Persistent Repository

(PR). If the PR is not available (most likely because of problems with the admin volume), the output reads (from default settings) and the values displayed would indicate the system defaults. When (from default settings) is displayed, you will not be able to update system parameters.

COMMAND

showsysmgr

DESCRIPTION

The `showsysmgr` displays startup state information about the system manager.

SYNTAX

showsysmgr

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the startup state information about the system manager. In this example, the system manager reports that it is up and running.

```
cli% showsysmgr
System is up and running from Thu May 24 15:39:22 PDT 2007
```

If the system has experienced a power failure, issuing the `showsysmgr` command displays the following message:

```
cli% showsysmgr
System is recovering from a previous powerfailure. Please use the CLI
commands for 'showvv', 'showld', 'showpd' to see any unstarted vvs, lds,
pds.
```

If the system has attempted powerfail recovery three times, and during the recovery attempts encountered kernal panics because of hardware or software errors, the following message is displayed. See [Notes](#) in the following section for additional information.

```
cli% showsysmgr
System is recovering from a previous power failure.
Please use the 'showvv', 'showld', 'showpd' CLI commands to
check for not started vvs, lds, pds.
Use force_idewipe to wipe pfail partititon and restart system with all
lds/vvs being checked. This can cause some data to be lost.
```

If the system has attempted powerfail recovery, and during the recovery encountered kernal panics because of hardware or software errors, the error could be associated with a specific volume. The following message is displayed. See [Notes](#) in the following section for additional information.

```
cli% showsysmgr
System is recovering from a previous power failure.
Please use the 'showvv', 'showld', 'showpd' CLI commands to
check for not started vvs, lds, pds.
Use force_iderecovery to start pfail recovery.
VVs with the id(s) 1 will lose data.
```

NOTES

- If the system has experienced a power failure, issue the `showvv`, `showld`, or `showpd` commands to determine if any physical disks, logical disks, or virtual volumes are unstarted. If the system stays in the powerfail state for longer than 15 minutes, the `setsysmgr` command can be issued with caution. See the [setsysmgr](#) command for more information.



CAUTION: Issuing the `setsysmgr force_idewipe` command can result in data loss.

- If the system has experienced a power failure, any cached data is saved to the IDE partition of each node. Upon restoration of power, the saved cached data is reapplied (powerfail recovery). During powerfail recovery, if kernal panics are encountered because of hardware or software errors, the powerfail recovery process fails. In such cases, the system attempts recovery three times. After three attempts, the system waits for user intervention. Issue the `setsysmgr force_idewipe` command to force the system to restart and check all logical

disks and virtual volumes upon restarting. See [setsysmgr](#) on page 21.71 for more information.

- During powerfail recovery, a kernel panic because of hardware or software errors might indicate a damaged volume. In such cases, after the system restarts, it waits for user intervention. Issue the `setsysmgr force_iderecovery` command to force the system to start another powerfail recovery. Any saved data for virtual volumes with IDs displayed in the `showsysmgr` command output can be lost. Those virtual volumes are checked when the system restarts. See [setsysmgr](#) on page 21.71 for more information.

COMMAND

`showtarget`

DESCRIPTION

The `showtarget` command displays information about unrecognized targets.

SYNTAX

`showtarget`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about unrecognized targets:

```
cli% showtarget
no unknown targets listed
```

In the previous example, there are no unknown targets. If unknown targets are found, information (port, node WWN, port WWN, and state) about each target found is displayed.

NOTES

Some hosts might appear as unknown targets.

COMMAND

`showtask`

DESCRIPTION

The `showtask` command displays information about tasks. By default, this command displays all tasks on the system.

SYNTAX

`showtask [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-done`

Display includes only tasks that are successfully completed.

`-failed`

Display includes only tasks that are unsuccessfully completed.

`-active`

Display includes only tasks that are currently in progress.

`-t <hours>`

Show only tasks that started within the past `<hours>`, where `<hours>` is an integer from 1 through 240.

`-d <task_ID> . . .`

Show detailed task status for specified tasks. Tasks must be explicitly specified using their task IDs `<task_ID>`. Multiple task IDs can be specified. This option cannot be used in conjunction with other options.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays all tasks on a system. In this case, the last task is still in progress.

```
cli% showtask
Id   Type  Name   Status Phase Step  -----StartTime----- -----FinishTime-----
1  tune_vv testr1  Done   0/0   0/0 Wed Oct 06 18:44:05 EDT 2004 Wed Oct 06 18:44:57 EDT 2004
2  tune_vv testr1  Done   0/0   0/0 Wed Oct 06 19:44:34 EDT 2004 Wed Oct 06 19:45:10 EDT 2004
3  tune_vv testr1  Active 2/3   5/8 Wed Oct 06 19:49:31 EDT 2004
```

The columns in the previous example are identified as follows:

- Id. The task ID for the displayed task.
- Type. The task type. Task types are as follows:
 - ◆ vv_copy. Track physical copy operations (createvvcopy command).
 - ◆ move_regions. Track region move operations (moverereg command).
 - ◆ promote_sv. Track virtual copy promotes (promotesv command). Requires a 3PAR Virtual Copy license.
 - ◆ remote_copy_sync. Track Remote Copy volume group synchronizations (syncrcopy and startrcopygroup commands). Requires a 3PAR Remote Copy license.
 - ◆ tune_vv. Track 3PAR System Tuner volume tuning operations (tunealddv command). Requires a 3PAR Dynamic Optimization license.
 - ◆ tune_vv_restart. Track restarted 3PAR System Tuner volume tuning operations (tunealddv -restart command). Requires a 3PAR Dynamic Optimization license.
 - ◆ tune_vv_rollback. Track rolling back of 3PAR System Tuner volume tuning operation that was previously interrupted (tunealddv -rollback command). Requires a 3PAR Dynamic Optimization license.
- Name. The name of the system object that is being operated on. When there are multiple objects, those objects are not identified individually but as a group (for example, multiple LDs or multiple CPGs).
- Status. The task state. Task states are as follows:
 - ◆ Done. The task has completed successfully.
 - ◆ Active. The task is still in process.

- ◆ Cancelled. The task was canceled by you.
- ◆ Failed. The task failed to complete because of a reason other than user cancelation.
- Phase. For Active tasks, indicates the number of completed phases and the total number of phases in the current step, using the syntax <#completed_phase>/<#total_phases>. Note that each step is composed of an arbitrary number of phases.
- Step. For Active tasks, indicates the number of completed steps and the total number of steps in the current task, using the syntax <#completed_step>/<#total_steps>. Note that each task is composed of an arbitrary number of steps.
- Start Time. Indicates the time that the task was started.
- Finish Time. For Done, Cancelled, and Failed tasks, indicates the time that the task stopped because of completion, cancelation, or failure.

The following example shows details about a specific task using the task ID (task ID is 3).

```
cli% showtask -d 3
TaskId  Name      Type Status Phase Step  -----Start_Time----- -----Finish_Time-----
    3 testrl tune_vv Done   3/3  1/1 Wed Oct 06 19:49:31 EDT 2004 Wed Oct 06 19:51:55 EDT 2004

Detailed status:
{Wed Oct 06 19:49:31 EDT 2004} Scheduled  region move of 256MB from (testrl.usr.0:0MB) to
(testrl.usr.2:0MB).
{Wed Oct 06 19:49:31 EDT 2004} Scheduled  region move of 256MB from (testrl.usr.1:0MB) to
(testrl.usr.2:256MB).
{Wed Oct 06 19:49:31 EDT 2004} Scheduled  region move of 256MB from (testrl.usr.0:256MB) to
(testrl.usr.2:512MB).
{Wed Oct 06 19:49:31 EDT 2004} Scheduled  region move of 256MB from (testrl.usr.1:256MB) to
(testrl.usr.2:768MB).
{Wed Oct 06 19:49:31 EDT 2004} Scheduled  region move of 256MB from (testrl.usr.0:512MB) to
(....)
(testrl.usr.2:1792MB).
{Wed Oct 06 19:51:54 EDT 2004} Completed  region move of 256MB from (testrl.usr.1:256MB) to
(testrl.usr.2:768MB) in 51 seconds.
{Wed Oct 06 19:51:54 EDT 2004} Completed  region move of 256MB from (testrl.usr.1:512MB) to
(testrl.usr.2:1280MB) in 51 seconds.
{Wed Oct 06 19:51:55 EDT 2004} Completed  region move of 256MB from (testrl.usr.1:768MB) to
(testrl.usr.2:1792MB) in 51 seconds.
{Wed Oct 06 19:51:55 EDT 2004} Waiting to switch regions to their new locations.
{Wed Oct 06 19:51:55 EDT 2004} Switching regions to their new locations.
{Wed Oct 06 19:51:55 EDT 2004} Reclaiming space from the move.
{Wed Oct 06 19:51:55 EDT 2004} Deleted   LD testrl.usr.0.
{Wed Oct 06 19:51:55 EDT 2004} Deleted   LD testrl.usr.1.
{Wed Oct 06 19:51:55 EDT 2004} Cleaning up task data for later restarts.
{Wed Oct 06 19:51:55 EDT 2004} Completed  region moves. Moved 8 regions for a total of 2048
MB in 2 minutes and 24 seconds.
```


NOTES

- See the *InForm OS CLI Administrator's Manual* for additional information and examples regarding task management and task management commands, as well as information about Dynamic Optimization.
- By default, this command shows all tasks that started within the last 24 hours.
- The system stores information for the most recent 1000 tasks. Task ID numbers roll at 99999.

COMMAND

showtemplate

DESCRIPTION

The showtemplate command displays existing templates that can be used for Virtual Volume (VV), Logical Disk (LD), or Common Provisioning Group (CPG) creation.

SYNTAX

showtemplate [options] [<template_name_or_pattern>...]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-t vv|ld|cpg

Specifies that the template type displayed is a Virtual Volume (VV), Logical Disk (LD), or Common Provisioning Group (CPG) template.

-fit

Specifies that the properties of the template is displayed to fit within 80 character lines.

SPECIFIERS

<template_name_or_pattern>

Specifies the name of a template, using up to 31 characters or glob-style pattern for matching multiple template names. If not specified, all templates are displayed.

RESTRICTIONS

None.

EXAMPLES

The following example displays the properties of all templates in CLI line format:

```
cli% showtemplate
Name Type Other Options
Test1 VV -nro -desc "1st Shot"
CPGTemplate CPG -nro -ro -t r1 -ha cage -ssz 2 -ss 256 -sdgs 0
```

NOTES

If no options are specified, all existing templates are displayed.

COMMAND

showtoc

DESCRIPTION

The `showtoc` command displays the system table of contents summary that provides a summary of the system's resources.

SYNTAX

showtoc

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the system table of contents:

```
cli% showtoc
gltab toc generation: 313
Toc header magic num: 42444854
Toc in use len: 70944
Toc not in use len: 0
Toc on disk len: 38912
Toc version: 69
Toc generation: 313
Toc pd_entries: 80
Toc ld_entries: 5
Toc vv_entries: 1
Toc cage_entries: 4
```

NOTES

None.

COMMAND

showtocgen

DESCRIPTION

The `showtocgen` command displays the table of contents generation number.

SYNTAX

showtocgen

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the table of contents generation number:

```
cli% showtocgen
Table of Contents generation number: 4292
```

NOTES

The table of contents generation number increases each time there is a change in the system configuration.

COMMAND

`showuser`

DESCRIPTION

The `showuser` command displays information about one or all users, including the username, authority level, and system resources to which a given user has access.

The `showuser` command shows account information for local users (those created with the `createuser` command) or shows the SSH key information for local and LDAP users (enabled by the `setauthparam` command).

For the first usage (without the `-k` option), the `showuser` command displays account information for all local users when the `<username>` is not provided or the account information for just the local user with the name `<username>` when it is provided. The output for users with Browse or Service level privileges is limited to the user's own accounts and if the `<username>` is provided, it must be the user's name. The output shows the users' username, domain, privilege, and whether the domain is the default for the user.

Because the output is only for local users and is further limited when the user is at the Browse or Service authority level, an LDAP user cannot see any other user account information. The `showuserconn` command can be used to see the privilege level of the current user and whether they are local or LDAP.

For the second usage (`-k`), users who have set a public SSH key with the `setsshkey` command are displayed, one per line. For users with Browse or Service privilege levels, the output is limited to the current user.

SYNTAX

The syntax for the `showuser` command can be the following:

- `showuser [-oneline] [<user_name>]`
- `showuser -k`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-k`

Shows when users have set a public SSH key.

`-online`

Shows all information about a user on one line.

SPECIFIERS

`<user_name>`

Specifies your login name, using up to 31 characters. This specifier is not required on the command line. If no specifier is used, information about all users is displayed.

RESTRICTIONS

Users with privilege levels of Browse and Service can only display the current user.

EXAMPLES

```
cli% showuser root
Username Domain Privilege Default
root      all    super      N
cli%
```

The previous example indicates user `root` being a member of all domains. Valid output includes `all`, or `<domain_name>`. The columns are identified as follows:

- Username. Your user name.
- Domain. The domain to which the user belongs.
- Privilege. The privilege level required to run the command.
- Default. Indicates whether the domain is the default domain of the user.

NOTES

Users are created using the `createuser` command. See [createuser](#) on page 11.59 for more information.

COMMAND

showuseracl

DESCRIPTION

The showuseracl command displays a user's access control list (ACL).

SYNTAX

showuseracl

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays ACL information about all system users:

```
cli% showuseracl
User          Operation Object_Names_or_Patterns
suser         updatevv avvro*
buser         updatevv avvr*,vv0,cpvv0,tpvv0 -f
ruser         updatevv vv0 cpvv0 tpvv0 avv*
```

The columns in the previous example are identified as follows:

- User. Your user name.
- Operation. The command each user is allowed to execute.
- Object_Names_or_Patterns. The object on which the operations are performed.

NOTES

None.

COMMAND

showuserconn

DESCRIPTION

The `showuserconn` command displays information about users who are currently connected (logged in) to the InServ Storage Server.

AUTHORITY

Super, Service, Edit, Browse

SYNTAX

showuserconn [options <arg>]

OPTIONS

-current

Shows all information about the current connection only.

-sortcol <col> [, <dir>][:<col>[, <dir>]...]

Sorts command output based on column number <col>. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting <dir> as follows:

inc

Sort in increasing order (default).

dec

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about user connections:

```
cli% showuserconn
  Id Name  --IP_Addr--- Domain Level ----Connected_since---- Current
23180 root  192.168.17.7 all      super 2007/05/31 15:02:53 PDT current
-----
      1 total
```

The columns in the previous example are identified as follows:

- **Id.** Your InServ Storage Server identification number.
- **Name.** Indicates the user name under which you logged in.
- **IP_Addr.** The IP address where the user connection exists.



NOTE: The `Domain` column is displayed only *if the CLI was started with the `-listdom global` option or with the `LISTDOM` environment variable. Refer to the *InForm OS CLI Administrator's Manual* for instructions on using global options and setting environment variables.*

- **Domain.** Indicates the domain in which the user has privileges.
- **Level.** Indicates the user's privilege level.

NOTES

None.

COMMAND

`showversion`

DESCRIPTION

The `showversion` command displays information about the storage server software. Use this command to determine if your system is using the latest software version.

SYNTAX

`showversion [options]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-a`

Show all component versions.

`-b`

Show build levels.

`-gpv`

Show the InForm Management Console interface version.

`-s`

Show release version number only (useful for scripting).

If no options are specified, the overall version of the software is displayed.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays comprehensive information about the system software:

```
cli% showversion
Release version 2.2.4.15 (DEVEL)
Patches:  None

Component Name          Version
CLI Server              2.2.4
CLI Client              2.2.4
GUI Server              2.2.4
System Manager          2.2.4
Kernel                  2.2.4
TPD Kernel Code         2.2.4
```

NOTES

- When displaying all versions, for certain components multiple versions might be installed. In such cases, multiple lines are displayed.
- The `-gpv` option was deprecated in the 2.2.3 release and will be changed or removed in a future release.

COMMAND

showvlun

DESCRIPTION

The `showvlun` command displays information about VLUNs in the system, such as all active and template VLUNs. The display is divided into two sections: the upper provides information about active VLUNs and the lower provides information about VLUN templates.

SYNTAX

`showvlun [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-lvw`

Show the WWN of the virtual volume associated with the VLUN.

`-a`

Show only active VLUNs.

`-t`

Show only VLUN templates.

`-host {<hostname|pattern>}...`

Specifies that only VLUNs exported to hosts that match the hostname or glob-style patterns (see Help on `sub,globpat`).

`-v {<VV_name>|<pattern>}...`

Requests that only logical disks mapped to virtual volumes that match any of the specified names or patterns be displayed. Multiple volume names or patterns can be repeated using a comma-separated list (for example `-vv <VV_name>,<VV_name>...`).

`-l {<LUN|pattern>}...`

Specifies that only exports to the specified LUN are displayed. This specifier can be repeated to display information for multiple LUNs.

`-nodes <nodelist>`

Requests that only VLUNs for specific nodes are displayed. The node list is specified as a series of integers separated by commas (for example 0,1,2). The list can also consist of a single integer (for example 1).

`-slots <slotlist>`

Requests that only VLUNs for specific slots are displayed. The slot list is specified as a series of integers separated by commas (for example 0,1,2). The list can also consist of a single integer (for example 1).

`-ports <portlist>`

Requests that only VLUNs for specific ports are displayed. The port list is specified as a series of integers separated by commas ((for example 0,1,2). The list can also consist of a single integer (for example 1).

`-domain {<domain_name|pattern>}...`

Shows only the VLUNs whose virtual volumes are in domains with names that match one or more of the `<domainname_or_pattern>` options. This option does now allow listing objects within a domain of which the user is not a member. Multiple domain names or patterns can be repeated using a comma-separated list (for example `-domain <domain_name>,<domain_name>...`).

`-sortcol <col> [,<dir>][:<col>[,<dir>]...]`

Sorts command output based on column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays all active and template VLUNs:

```
cli% showvln
Active VLUNs
Lun  VVname      Host  ----Host_WWN----  Port Type
0    tpv.0  pe750-07  210000E08B056C21  0:2:1 host
1    tpv.1  pe750-07  210000E08B056C21  0:2:1 host
2    tpv.2  pe750-07  210000E08B056C21  0:2:1 host
3    tpv.3  pe750-07  210000E08B056C21  0:2:1 host
0    tpv.0  pe750-07  210100E08B256C21  1:2:1 host
1    tpv.1  pe750-07  210100E08B256C21  1:2:1 host
2    tpv.2  pe750-07  210100E08B256C21  1:2:1 host
3    tpv.3  pe750-07  210100E08B256C21  1:2:1 host
0    test.0      sun  210000E08B023F71  0:2:2 host
1    test.1      sun  210000E08B023F71  0:2:2 host
2    test.2      sun  210000E08B023F71  0:2:2 host
3    test.3      sun  210000E08B023F71  0:2:2 host
0    test.0      sun  210000E08B023C71  1:5:1 host
1    test.1      sun  210000E08B023C71  1:5:1 host
2    test.2      sun  210000E08B023C71  1:5:1 host
3    test.3      sun  210000E08B023C71  1:5:1 host
-----
16

VLUN Templates
Lun  VVname      Host  ----Host_WWN----  Port Type
0    tpv.0  pe750-07  -----  --- host
1    tpv.1  pe750-07  -----  --- host
2    tpv.2  pe750-07  -----  --- host
3    tpv.3  pe750-07  -----  --- host
0    test.0      sun  -----  --- host
1    test.1      sun  -----  --- host
2    test.2      sun  -----  --- host
3    test.3      sun  -----  --- host
-----
8
```


The following example displays all active and template VLUNs using glob-style patterns:

```
cli% showvln -v *.2,*.3
Active VLUNs
Lun  VVname      Host  ----Host_WWN----  Port Type
  2  tpv.2  pe750-07  210000E08B056C21  0:2:1 host
  3  tpv.3  pe750-07  210000E08B056C21  0:2:1 host
  2  tpv.2  pe750-07  210100E08B256C21  1:2:1 host
  3  tpv.3  pe750-07  210100E08B256C21  1:2:1 host
  2  test.2      sun  210000E08B023F71  0:2:2 host
  3  test.3      sun  210000E08B023F71  0:2:2 host
  2  test.2      sun  210000E08B023C71  1:5:1 host
  3  test.3      sun  210000E08B023C71  1:5:1 host
-----
8

VLUN Templates
Lun  VVname      Host  ----Host_WWN----  Port Type
  2  tpv.2  pe750-07  -----          --- host
  3  tpv.3  pe750-07  -----          --- host
  2  test.2      sun  -----          --- host
  3  test.3      sun  -----          --- host
-----
4
```

The columns in the previous examples are identified as follows:

- **Lun.** The LUN to which the virtual volume is exported.
- **VVname.** The name of the exported virtual volume.
- **Host.** The name of the host to which the virtual volume is exported. In the *Templates* section, the port-presents rule contains no value.
- **Host_WWN.** The WWN of the host to which the virtual volume is exported. In the *Templates* section, dashes mean this column does not apply.
- **Port.** The port (node:slot:port) on which the host to which the virtual volume is exported appears. In the *Templates* section, the host-sees rule contains dashes.
- **Type.** The type of export rule that is applied when the virtual volume is exported. Possible entries are *port* for port-presents, *host* for host-sees, and *matched-set* for matched-set.

NOTES

- If no options are specified, issuing the `showvln` command displays both active VLUNs and VLUN templates.

- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` were deprecated and replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.
- See [Glob-Style Pattern](#) on page 2.4 for more information.

COMMAND

showvv

DESCRIPTION

The `showvv` command displays information about all virtual volumes or a specific virtual volume in a system.

SYNTAX

```
showvv [options <arg>] [<VV_name|pattern>...]
```

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-cpg {<CPG_name|pattern>}...`

Displays virtual volumes belonging to a common provisioning group (CPG) or pattern as indicated with either the `<CPG_name>` or `<pattern>` specifier. Multiple CPGs or patterns can be repeated using a comma-separated list (for example `-cpg <CPG_name>,<CPG_name>...`).

`-tpvv`

Displays only thinly provisioned virtual volumes.

`-host {<host_name|pattern>}...`

Displays only virtual volumes that are visible to hosts with names that match one or more of the specified host name or patterns. See [Specifiers](#) for additional information on patterns as used with this command. Multiple hosts or patterns can be repeated using a comma-separated list (for example `-host <host_name>,<host_name>...`).

`-rcopygroup {<group_name|pattern>}...`

Shows only virtual volumes that are in Remote Copy groups that match one or more of the specified groups or patterns. Multiple groups or patterns can be repeated using a comma-separated list (for example `-rcopygroup <group_name>,<group_name>...`).

`-domain {<domain_name|pattern>}...`

Shows only virtual volumes that are in domains with names that match one or more of the specified domains or patterns. This option does now allow listing objects within a domain of which the user is not a member. Multiple domain names or patterns can be repeated

using a comma-separated list (for example `-domain <domain_name>,<domain_name>...`).

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

One of the following options can be specified to show information about the virtual volumes:

`-d`

Displays detailed information about the virtual volumes.

`-p`

Displays policy information about the virtual volume.

`-s`

Displays space use.

`-r`

Displays raw space use.

`-g`

Displays the volume's SCSI geometry settings.

`-alert`

Indicates whether alerts are posted.

`-alerttime`

Shows times when alerts were posted (when applicable).

`-cpprog`

Shows the physical copy and promote progress.

`-snapspace`

Displays the snapspace for the virtual volume.

`-cpgalloc`

Shows CPGs from which a virtual volume is allocated, if any.

The following option can be specified to add additional columns to the output:

`-rcopy`

Adds `RcopyStatus` and `RcopyGroup` columns.

SPECIFIERS



NOTE: If one or more `<VV_name|pattern>` are specified, then the virtual volumes with names that match any of the patterns are listed. Otherwise, all virtual volumes are listed. The virtual volumes shown include snapshots. Patterns are glob-style (shell-style) patterns (see Help for `sub, globpat`).

`<VV_name> . . .`

Specifies the virtual volume name (31 character maximum) for which information is displayed. This specifier can be repeated to display configuration information about multiple virtual volumes. This specifier is not required on the command line. If not specified, configuration information for all virtual volumes in the system is displayed.

`<pattern> . . .`

Specifies that the virtual volumes matching the specified glob-style pattern is displayed. This specifier can be repeated to display configuration information about multiple virtual volumes. This specifier is not required on the command line. If not specified, configuration information for all virtual volumes in the system is displayed. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about all virtual volumes:

```
cli% showvv
```

Id	Name	Domain	Type	CopyOf	BsId	Rd	State	AdmMB	SnapMB	userMB
0	admin	-	Base	---	0	RW	started	0	0	10240
1	par	d1	Base,cpvv	---	1	RW	started	128	512	16384
2	copy	-	PhCp	par	2	RW	started	0	0	16384
3	vvcp.1.2	-	SnCp	par	1	RO	started	-	-	16384
4	tpvv	d3	Base,tpvv	---	4	RW	started	128	512	65536

5	total LD							256	1024	43008
	total virtual							-	-	124928

The columns in the previous example are identified as follows:

- ID. The ID of the virtual volume.
- Name. The name of the virtual volume.
- Domain. The domain to which the virtual volume belongs. Valid values are - or <domain_name>. If the domain does not exist, - is displayed. The Domain column can be included by using the `setclienv` command to set `listdom` to 1. The `listdom` option is also set to 1 if the CLI was started with the `-listdom` option or if the CLI was started with the `TPDLISTDOM` environment variable.
- Type. Indicates the type of virtual volume.
 - ◆ Base. The virtual volume is a base volume.
 - ◆ Base,tpvv. The virtual volume is a thinly provisioned virtual volume.
 - ◆ Base,cpvv. The virtual volume is a copy autogrow virtual volume.
 - ◆ SnCP. The virtual volume is a snapshot.
 - ◆ PhCp. The virtual volume is a physical copy.
- CopyOf. Displays the virtual volume from which the copy was made.
 - ◆ ---. The virtual volume is a base volume.
 - ◆ name. The name of the virtual volume from which a copy was made.

- **BsID**. If the virtual volume is a base volume or a physical copy, the base volume ID number is the same as the ID number in the **Id** column. If the virtual volume is a virtual copy, the column shows the base volume from which the copy was made.
- **Rd**. Indicates whether the virtual volume is read/write (RW) or read-only (RO).
- **State**. Indicates the current status of the virtual volume.
 - ◆ **preserved**. A logical disk used by the virtual volume has unavailable RAID sets. The data belonging to the virtual volume is saved on the preserved logical disk. Host access to the virtual volume is unavailable until RAID sets are made available.
 - ◆ **started**. The virtual volume has been started and is available for use.
 - ◆ **started, stl**. The virtual volume is stale.
 - ◆ **started, cpf**. The virtual volume copy or promote has failed.
 - ◆ **not_started**. The virtual volume has not yet been started (perhaps because one of its underlying logical disks has not yet been started).
 - ◆ **pmt**. A promote is currently occurring on the base volume.

The following **State** values indicate that an uncontrolled shutdown has occurred and the volume was not properly closed before the shutdown. Volumes are checked for internal validity before being started.

- ◆ **auto_check**. The virtual volume is checked for validity; however, it is waiting in a queue for computing resources to become available on the primary owner node.
- ◆ **checking**. The virtual volume is being checked for validity.
- ◆ **need_check**. The virtual volume has been checked, and an inconsistency has been found.
- ◆ **need_ld**. One of the underlying logical disks is not in the normal state. After all logical disks are in the normal state, the status changes to **auto_check** and then to **checking**.
- **AdmMB**. The snapshot administrator space in megabytes.
- **SnapMB**. The snapshot space in megabytes.
- **userMB**. Your user space in megabytes.

The following example displays detailed information about the system's virtual volumes:

```
cli% showvv -d
Id  Name Rd  Mstr Prnt  Roch Rwch PPrnt PBlkRemain -----VV_WWN----- -----CreationTime-----
0  admin RW 1/-/- --- --- --- --- - 50002AC0000001A8 Thu May 24 20:22:07 PDT 2007
7  vv1 RW 1/0/- --- --- --- --- - 50002AC0000701A8 Tue Aug 28 16:41:01 PDT 2007
8  vv2 RW 0/1/- --- --- --- --- - 50002AC0000801A8 Tue Aug 28 16:41:26 PDT 2007
9  vv3 RW 1/0/- --- --- --- --- - 50002AC0000901A8 Tue Aug 28 16:41:37 PDT 2007
-----
4
```

The columns in the output above are identified as follows:

- **Id.** The virtual volume's ID.
- **Name.** The virtual volume's name.
- **Rd.** The read/write permissions for the volume. Values can be RW (read and write) or RO (read only).
- **Mstr.** The master node for the volume responsible for assigning mapping zones.
- **Prnt.** The ID of the volume's parent in the snapshot tree.
- **Roch.** The ID of the read only child volume in the snapshot tree.
- **Rwch.** The ID of the read write child volume in the snapshot tree.
- **PPrnt.** The ID of the volume's physical parent volume.
- **PBlkRemain.** The number of remaining blocks to be copied from the parent volume (for physical copy destination).
- **VV_WWN.** The volume's World Wide Name.
- **CreationTime.** The creation date and time of the volume.

The following example displays the distribution of space for each virtual volume:

```
cli% showvv -s
Id  Name Domain Type CPGName AWrn% ALim% AdmMB FAdMB SnapMB FSnpMB AdmZ FAdZ SnpZ FSnpZ userMB
0  admin - Base --- - - 0 0 0 0 0 0 0 0 10240
1  test2 - Base --- - - 0 0 0 0 0 0 0 0 1024
-----
2  0 0 0 0 0 0 0 11264
```

The columns in the previous example are identified as follows:

- **ID.** The ID of the virtual volume.

- **Name** . The name of the virtual volume.
- **Domain**. The domain to which the virtual volume belongs. Valid values are – or <domain_name>. If the domain does not exist, – is displayed. The Domain column can be included by using the `setclienv` command to set `listdom` to 1. The `listdom` option is also set to 1 if the CLI was started with the `-listdom` option or if the CLI was started with the `TPDLISTDOM` environment variable.
- **Type** . Indicates the type of virtual volume.
 - ◆ **Base**. The virtual volume is a base volume.
 - ◆ **SnCP**. The virtual volume is a snapshot.
 - ◆ **PhCp**. The virtual volume is a physical copy.
- **CPGname**. The name of the common provisioning group used by the virtual volume.
- **AWrn%**. The allocation warning percentage.
- **ALim%**. The allocation limit percentage.
- **AdmMB**. The snapshot administration space in megabytes.
- **FAdMB**. The free space available in snapshot administration space, in megabytes.
- **SnapMB** . The snapshot space in megabytes.
- **FSnpMB**. The free space available in snapshot data space, in megabytes.
- **AdmZ**. The number of snapshot administration zones in 32 MB increments.
- **FAdZ**. The number of free snapshot administration zones in 32 MB increments.
- **SnpZ** . The number of snapshot zones in 128 MB increments.
- **FSnpZ**. The number of free snapshot zones in 128 MB increments.
- **userMB**. Your user space in megabytes.

The following example displays policy information for virtual volume 0:

```
cli% showvv -p 0
Id  Name Domain                               Policies
  0  admin    -                               stale_ss,system
-----
  1
```

The columns in the previous example are identified as follows:

- **Id.** The virtual volume ID.
- **Name.** The virtual volume name.
- **Domain.** The domain to which the virtual volume belongs. Valid values are – or <domain_name>. If the domain does not exist, – is displayed. The Domain column can be included by using the `setclienv` command to set `listdom` to 1. The `listdom` option is also set to 1 if the CLI was started with the `-listdom` option or if the CLI was started with the `TPDLISTDOM` environment variable.
- **Policies.** The current policy assigned to the displayed virtual volume.

The following example displays the snapshot space information:

```
1 cli% showvv -snapspace
```

Id	Name	Domain	Type	BsId	VirtMB	AdmMB	MB	%Adm	SnapMB	MB	%Virt	%Snap
0	admin	-	Base	0	10240	0	-	-	0	-	-	-
1	test2	-	Base	1	1024	0	-	-	0	-	-	-

The columns in the previous example are identified as follows:

- **ID.** The ID of the virtual volume.
- **Name.** The name of the virtual volume.
- **Domain.** The domain to which the virtual volume belongs. If the domain does not exist, – is displayed. The Domain column can be included by using the `setclienv` command to set `listdom` to 1. The `listdom` option is also set to 1 if the CLI was started with the `-listdom` option or if the CLI was started with the `TPDLISTDOM` environment variable set.
- **Type.** Indicates the type of virtual volume.
 - ◆ **Base.** The virtual volume is a base volume.
 - ◆ **Base, tppv.** The virtual volume is a thinly provisioned virtual volume.
 - ◆ **Base, cpvv.** The virtual volume is a copy autogrow virtual volume.
 - ◆ **SnCP.** The virtual volume is a snapshot.

- ◆ PhCp. The virtual volume is a physical copy.
- BsID. If the virtual volume is a base volume or a physical copy, the base volume ID number is the same as the ID number in the Id column. If the virtual volume is a virtual copy, the column shows the base volume from which the copy was made.
- VirtMB. The virtual space in megabytes.
- AdmMB. The administrator space in megabytes.
- UsedAdm. The column displays information for the used administration space in megabytes and percentage.
 - ◆ MB. The administrator space used in megabytes.
 - ◆ %Adm. The administrator space used in percentage.
- SnapMB. The snapshot data space in megabytes.
- UsedSnap. The column displays information for the used snapshot space in megabytes and percentage.
 - ◆ MB. The snapshot space in megabytes.
 - ◆ %Virt. The virtual space used in percentage.
 - ◆ %Snap. The snapshot space used in percentage.
- TimeCalculated. The time and date of the updatesnapspace task is completed.

NOTES

- For this command MB = 1048576 bytes.
- Displayed virtual volumes include snapshots.

COMMAND

showvmap

DESCRIPTION

The `showvmap` command displays information about how virtual volume regions are mapped to logical disks.

SYNTAX

`showvmap <VV_name>`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

None.

SPECIFIERS

`<VV_name>`

Specifies the virtual volume name, using up to 31 characters.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about how virtual volume `VV1` is mapped:

cli% showvmap VV1						
	Space	Start(MB)	Length(MB)	LdId	LdName	LdOff(MB)
sa	0	0	256	25	VV1.adm.0	0
	1	256	256	24	VV1.adm.1	0
sd	0	0	224	23	VV1.snp.0	0
	1	224	192	22	VV1.snp.1	0
usr	0	0	256	27	VV1.usr.0	0
	1	256	256	26	VV1.usr.1	0
	2	512	256	27	VV1.usr.0	256
	3	768	256	26	VV1.usr.1	256
	4	1024	256	27	VV1.usr.0	512
	5	1280	256	26	VV1.usr.1	512
	6	1536	256	27	VV1.usr.0	768
	7	1792	256	26	VV1.usr.1	768

The columns in the previous example are identified as follows:

- `Space`. The type of the space (user (`usr`), snapshot data (`sd`), or snapshot administration (`sa`)) for which the region is being used followed by the ID of the region. The number to the right of the space type are the chunklets for each space.
- `Start(MB)`. The offset from the beginning of the region, in MB.
- `Length(MB)`. The length, or size, of the region in MB.
- `LdId`. The ID of the logical disk that contains the region.
- `LdName`. The name of the logical disk that contains the region.
- `LdOff(MB)`. The offset from the beginning of the logical disk that contains the region, in MB.

NOTES

None.

COMMAND

showvvpd

DESCRIPTION

The `showvvpd` command displays virtual volume distribution across physical disks.

SYNTAX

`showvvpd [option <arg>] {<VV_name|pattern>}...`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

SPECIFIERS

`<VV_name>...`

Specifies the virtual volume name for which information is displayed. This specifier can be repeated to display configuration information about multiple virtual volumes. This specifier is not required on the command line. If not specified, configuration information for all virtual volumes in the system is displayed.

`<pattern>...`

Specifies that the virtual volumes matching the specified glob-style pattern is displayed. This specifier can be repeated to display configuration information about multiple virtual volumes. This specifier is not required on the command line. If not specified, configuration

information for all virtual volumes in the system is displayed. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

None.

EXAMPLES

The following example displays information about multiple virtual volumes. In this case multi.0, multi.1, multi.2 and multi.3 were created using the `-cnt 4` option. Using `multi.*`, the aggregate chunklets for all the physical disks is displayed:

```
cli% showvvpd multi.*
Id Cage_Pos SA SD usr total
0 0:0:0 0 0 0 0
1 0:0:1 0 0 0 0
2 0:0:2 0 0 0 0
3 0:0:3 0 0 0 0
4 0:1:0 0 0 0 0
5 0:1:1 0 0 0 0
6 0:1:2 0 0 0 0
7 0:1:3 0 0 0 0
8 0:2:0 0 0 0 0
9 0:2:1 0 0 0 0
10 0:2:2 0 0 0 0
11 0:2:3 0 0 0 0
12 0:3:0 0 0 0 0
13 0:3:1 0 0 0 0
14 0:3:2 0 0 0 0
15 0:3:3 0 0 0 0
16 1:0:0 0 0 4 4
17 1:0:1 0 0 4 4
18 1:0:2 0 0 4 4
19 1:0:3 0 0 4 4
20 1:1:0 0 0 4 4
21 1:1:1 0 0 4 4
22 1:1:2 0 0 4 4
23 1:1:3 0 0 4 4
24 1:2:0 0 0 4 4
25 1:2:1 0 0 4 4
26 1:2:2 0 0 4 4
27 1:2:3 0 0 4 4
28 1:3:0 0 0 4 4
29 1:3:1 0 0 4 4
30 1:3:2 0 0 4 4
31 1:3:3 0 0 4 4
32 2:0:0 0 0 4 4
33 2:0:1 0 0 4 4
34 2:0:2 0 0 4 4
35 2:0:3 0 0 4 4
36 2:1:0 0 0 4 4
37 2:1:1 0 0 4 4
38 2:1:2 0 0 4 4
39 2:1:3 0 0 4 4
40 2:2:0 0 0 4 4
41 2:2:1 0 0 4 4
42 2:2:2 0 0 4 4
43 2:2:3 0 0 4 4
44 2:3:0 0 0 4 4
45 2:3:1 0 0 4 4
46 2:3:2 0 0 4 4
47 2:3:3 0 0 4 4
-----
48 total 0 0 128 128
```


For the example above, if you only specified a single volume you would get the same result. That is because the four virtual volumes are interleaved across the same logical disks and share the same chunklets.

The following example displays the distribution of space for a single virtual volume (`multi.0`):

```
cli% showvvpd multi.0
Id Cage_Pos SA SD usr total
0 0:0:0 0 0 0 0
1 0:0:1 0 0 0 0
2 0:0:2 0 0 0 0
3 0:0:3 0 0 0 0
4 0:1:0 0 0 0 0
5 0:1:1 0 0 0 0
6 0:1:2 0 0 0 0
7 0:1:3 0 0 0 0
8 0:2:0 0 0 0 0
9 0:2:1 0 0 0 0
10 0:2:2 0 0 0 0
11 0:2:3 0 0 0 0
12 0:3:0 0 0 0 0
13 0:3:1 0 0 0 0
14 0:3:2 0 0 0 0
15 0:3:3 0 0 0 0
16 1:0:0 0 0 4 4
17 1:0:1 0 0 4 4
18 1:0:2 0 0 4 4
19 1:0:3 0 0 4 4
20 1:1:0 0 0 4 4
21 1:1:1 0 0 4 4
22 1:1:2 0 0 4 4
23 1:1:3 0 0 4 4
24 1:2:0 0 0 4 4
25 1:2:1 0 0 4 4
26 1:2:2 0 0 4 4
27 1:2:3 0 0 4 4
28 1:3:0 0 0 4 4
29 1:3:1 0 0 4 4
30 1:3:2 0 0 4 4
31 1:3:3 0 0 4 4
32 2:0:0 0 0 4 4
33 2:0:1 0 0 4 4
34 2:0:2 0 0 4 4
35 2:0:3 0 0 4 4
36 2:1:0 0 0 4 4
37 2:1:1 0 0 4 4
38 2:1:2 0 0 4 4
39 2:1:3 0 0 4 4
40 2:2:0 0 0 4 4
41 2:2:1 0 0 4 4
42 2:2:2 0 0 4 4
43 2:2:3 0 0 4 4
44 2:3:0 0 0 4 4
45 2:3:1 0 0 4 4
46 2:3:2 0 0 4 4
47 2:3:3 0 0 4 4
-----
48 total 0 0 128 128
```

The following example displays information for a specific column:

```
cli% showvvpd -sortcol 5,dec junk
Id Cage_Pos SA SD usr total
6 0:1:2 1 1 1 3
19 1:0:3 1 1 1 3
27 1:2:3 1 1 1 3
30 1:3:2 1 1 1 3
43 2:2:3 1 1 1 3
0 0:0:0 1 1 0 2
3 0:0:3 1 1 0 2
7 0:1:3 0 1 1 2
8 0:2:0 1 1 0 2
9 0:2:1 1 1 0 2
10 0:2:2 1 1 0 2
11 0:2:3 1 1 0 2
15 0:3:3 1 1 0 2
17 1:0:1 1 1 0 2
18 1:0:2 1 1 0 2
20 1:1:0 1 1 0 2
21 1:1:1 1 1 0 2
22 1:1:2 1 1 0 2
24 1:2:0 1 1 0 2
26 1:2:2 1 1 0 2
29 1:3:1 1 1 0 2
31 1:3:3 1 1 0 2
33 2:0:1 1 1 0 2
34 2:0:2 1 1 0 2
39 2:1:3 1 1 0 2
40 2:2:0 1 1 0 2
42 2:2:2 1 1 0 2
44 2:3:0 1 1 0 2
45 2:3:1 1 1 0 2
46 2:3:2 0 1 1 2
1 0:0:1 0 1 0 1
2 0:0:2 0 1 0 1
4 0:1:0 0 1 0 1
5 0:1:1 0 1 0 1
12 0:3:0 0 1 0 1
13 0:3:1 1 0 0 1
14 0:3:2 1 0 0 1
16 1:0:0 0 0 1 1
25 1:2:1 0 1 0 1
28 1:3:0 0 1 0 1
32 2:0:0 0 1 0 1
35 2:0:3 0 1 0 1
37 2:1:1 0 1 0 1
38 2:1:2 1 0 0 1
47 2:3:3 1 0 0 1
23 1:1:3 0 0 0 0
36 2:1:0 0 0 0 0
41 2:2:1 0 0 0 0
-----
48 total 32 40 8 80
```

NOTES

- The command prints the number of chunklets in each physical disk that contain data for the Snapshot Admin (SA), Snapshot Data (SD), User space as well as the total for all spaces

for all the virtual volumes that match the <VV_name> or <pattern> list. This can be useful in determining how evenly the virtual volume is striped across the disks.

- Note that not all the data in the chunklets is necessarily allocated exclusively to the selected virtual volumes. In some cases, only part of a chunklet could be data that is allocated for the virtual volumes.

23

Shutdown Commands

In this chapter

<code>shutdownnode</code>	23.2
<code>shutdownsys</code>	23.4

COMMAND

`shutdownnode`

DESCRIPTION

The `shutdownnode` command shuts down a system node.

SYNTAX

`shutdownnode halt|reboot [option] <node_ID>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`halt`

Specifies that the nodes are halted after shutdown. If this subcommand is not specified, the `reboot` subcommand must be used.

`reboot`

Specifies that the nodes are restarted after shutdown. If this subcommand is not given, the `halt` subcommand must be used.

OPTIONS

`-f`

Specifies that validation is skipped. See Notes later for information about the validation procedures.

SPECIFIERS

`<node_ID>`

Specifies the node, identified by its ID, to be shut down.

RESTRICTIONS

The `shutdownnode` command should not be issued while a `servicemag` command is in progress because the command can cause the `servicemag` command to fail.

EXAMPLES

The following example shuts down system node 0 and halts the restarting of the node:

```
cli% shutdownnode halt 0
```

NOTES

- When issuing the `shutdownnode` command without the `-f` option, the system manager executes a set of validation checks before proceeding with the shutdown.
- If any of the following conditions exists, the shutdown operation will not proceed unless the `-f` option is specified:
 - ◆ One or more orphaned logical disks exist on the system that cannot be preserved and could therefore lead to data loss.
 - ◆ One or more admin logical disks cannot be reset, resulting in the kernel being unable to access meta data from those logical disks.
 - ◆ One or more data (user or snap) logical disks cannot be reset, causing their associated VLUNs to become inaccessible to host applications.

COMMAND

`shutdownsys`

DESCRIPTION

The `shutdownsys` command shuts down an entire system.

SYNTAX

`shutdownsys halt|reboot [option]`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

`halt`

Specifies that the system should be halted after shutdown. If this subcommand is not specified, the `reboot` subcommand must be used.

`reboot`

Specifies that the system should be restarted after shutdown. If this subcommand is not specified, the `halt` subcommand must be used.

OPTIONS

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

None.

RESTRICTIONS

Do not issue any commands other than `showsys` while the system is shutting down.

EXAMPLES

The following example shuts down and then restarts the system:

```
cli% shutdownsys reboot
```

NOTES

- After the `shutdownsys` command is issued, there is no indication from the CLI that the shutdown is occurring. You can issue the `showsys` command ([showsys](#) on page 22.139) to display the current status of the system during the initial stage of the shutdown process and after the system has fully restarted.
- If the node that was running on the system manager fails or if the system manager process exits while executing the `shutdownsys` command, the shutdown will not complete. The only safe action is to reissue the `shutdownsys` command.

24

Start Commands

In this chapter

startcim	24.2
startld	24.3
startcopy	24.4
startcopygroup	24.5
startvv	24.7

COMMAND

`startcim`

DESCRIPTION

The `startcim` command starts the CIM server to service CIM requests. By default, the CIM server is not started until this command is issued.

SYNTAX

`startcim`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example starts the CIM server:

```
cli% startcim
CIM server will start in about 90 seconds.
```

NOTES

- By default, the CIM server is not started until this command is issued.
- Use `stopcim` to stop the CIM server.

COMMAND

startld

DESCRIPTION

The startld command starts data services on a logical disk that has not yet been started.

SYNTAX

startld [option] <LD_name>

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

-ovrd

Specifies that the logical disk is forced to start, even if some underlying data is missing.

SPECIFIERS

<LD_name>

Specifies the logical disk name, using up to 27 characters.

RESTRICTIONS

None.

EXAMPLES

The following example starts data services on logical disk ld5:

```
cli% startld ld5
```

NOTES

None.

COMMAND

`startrcopy`

DESCRIPTION

The `startrcopy` command enables Remote Copying.

SYNTAX

`startrcopy`

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

OPTIONS

None.

SPECIFIERS

None.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example starts Remote Copy on a system:

```
cli% startrcopy
```

NOTES

- The `startrcopy` command must be executed before any other Remote Copy command.
- An older version of this command used `primary`, `secondary`, and `both` specifiers to designate the system on which Remote Copy is started. This syntax is deprecated and will be changed or removed in a future release.

COMMAND

startrcopygroup

DESCRIPTION

The startrcopygroup command turns on Remote Copy for the specified Remote Copy volume group.

SYNTAX

startrcopygroup [options] <group_name>

AUTHORITY

Super, Edit

OPTIONS

-wait

The system generates an event when the synchronization is completed.

-nosync

Prevents the initial synchronization and sets the virtual volumes to a synchronized state.

SPECIFIERS

<group_name>

The name of the Remote Copy volume group. The group name can be obtained using the showrcopy command.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example starts Remote Copy for Group1:

```
cli% startrcopygroup Group1
```

NOTES

- If a group's target has the `mirror_config` policy set and the group is a primary group, then this command is mirrored to that target and the corresponding secondary group is started. If the policy is set and the group is a secondary, then this command fails.
- If the `mirror_config` policy is not set, then the corresponding secondary group must already be started or this command fails.
- Synchronous groups are automatically synchronized when started. Asynchronous periodic volume groups are synchronized only on the first time they are started.
- You must enter this command on the secondary server before entering it on the primary if the `mirror_config` policy is not set.

COMMAND

startvv

DESCRIPTION

The `startvv` command starts data services on a virtual volume that has not yet been started.

SYNTAX

`startvv [option] <VV_name>`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-ovrd`

Specifies that the logical disk is forced to start, even if some underlying data is missing.

SPECIFIERS

`<VV_name>`

Specifies the virtual volume name, using up to 31 characters.

RESTRICTIONS

None.

EXAMPLES

The following example starts data services on virtual volume `testvv`:

```
cli% startvv testvv
```

NOTES

None.

25

Stat Commands

In this chapter

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statcmp	25.8
statcpu	25.10
statisci	25.12
statiscisession	25.16
statld	25.18
statlink	25.23
statpd	25.25
statport	25.33
statrcopy	25.38
statvlun	25.41
statvv	25.47

COMMAND

statch

The statch command displays chunklet statistics in a timed loop.

SYNTAX

statch [options <arg>]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-rw

Specifies that reads and writes are displayed separately. If this option is not used, then the total of reads plus writes is displayed.

-d <secs>

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of 2 seconds. This option and argument are not required in the command line.

-iter <number>

Specifies that chunklet statistics are displayed a specified number of times as indicated by the num argument using an integer from 1 through 2147483647.

-begin

Specifies that I/O averages are computed from the system start time. If not specified, the average is computed since the first iteration of the command.

-idlep

Specifies the percent of idle columns in the output.

`-sortcol <col> [,<dir>][:<col>[,<dir>]...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified and separated by a colon (:). Rows that have the same information in them as earlier columns will be sorted by values in later columns.

`-filt <fspec>`

Specifies that statistics that fall below the threshold as specified by the `<fspec>` arguments, where `<fspec>` is `<type>`, `<op>`, `<meas>`, `<val>`, are filtered out and not displayed. The `<type>`, `<op>`, `<meas>`, and `<val>` arguments are separated with one comma.

`<type>`

The `type` argument can be specified with one of the following arguments:

`curs`

Specifies that only current statistics are displayed.

`avgs`

Specifies that only averages are displayed.

`maxs`

Specifies that only statics for maximum values are displayed.

`<op>`

The `operation` argument can be specified with one of the following arguments:

`r`

Specifies that read-only statistics are displayed.

`w`

Specifies that write-only statistics are displayed.

`t|rw`

Specifies that statistics for read and write totals are displayed.

<meas>

The `meas` argument can be specified with one of the following arguments:

iops

Specifies that I/O operations per second are displayed. If this argument is used, the minimum threshold value must be specified using the `<val>` argument.

bw

Specifies that statistics for bandwidth in bytes per second are displayed. If this argument is used, the minimum threshold value must be specified using the `<val>` argument.

svct

Specifies that statistics for service time in milliseconds are displayed.

size

Specifies that statistics for I/O operations in bytes are displayed.

`<val> [k|K] | [m|M] | [g|G]`

Specifies the minimum threshold using any integer. The integer can optionally be followed with `k` or `K` to indicate a multiple of 1000, `m` or `M` to indicate a multiple of 1,000,000, or `g` or `G` to indicate a multiple of 1,000,000,000.

An example of this option in use is `-filt curs,r,iops,10k` that indicates that statistics for a device that has more than 10,000 current read-only I/O operations are displayed.

-ni

Specifies that statistics for only non-idle devices are displayed. This option is shorthand for the option `-filt curs,t,iops,0`.

`-ld <LD_name> | -ch <chunk_num>`

`-ld <LD_name>`

Specifies that statistics are restricted to chunklets from a particular logical disk.

`-ch <chunk_num>`

Specifies that statistics are restricted to a particular chunklet number.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the collection of statistics:

```
cli% statch -iter 1
12:47:54 04/06/06 r/w I/O per second KBytes per sec Svt ms IOSz KB Util %
Ldid Ldname LdCh Pdid PdCh Cur Avg Max Cur Avg Max Cur Avg Cur Avg Qlen Cur Avg
-----
total t 0 0 0 0 0.0 0.0 0.0 0.0 0 0 0
```

For the previous example, before the `statch` command was issued, the `setstatch start` command was issued for chunklets 0 and 2 on logical disk `vv0.usr.1` and for chunklets 0 and 1 on logical disk `vv0.usr.2`.

The columns in the example above are identified as follows:

- `Ldid`. The logical disk ID.
- `Ldname`. The logical disk name.
- `LdCh`. The number of LD chunklets.
- `Pdid`. The physical disk ID.
- `r/w`. The I/O type. Values can be read (`r`), write (`w`), or read and write (`t`).
- `I/O per second Cur`. The current number of I/O per second.
- `I/O per second Avg`. The average number of I/O per second.
- `KBytes per Max`. The maximum number of KB per second.
- `KBytes per Cur`. The current number of KB per second.
- `KBytes per Avg`. The average number of KB per second.
- `Svt ms Max`. The maximum service time in milliseconds.
- `Svt ms Cur`. The current service time in milliseconds.
- `Svt ms Avg`. The average service time in milliseconds.
- `IOSz KB Cur`. The current I/O size in KB.
- `IOSz KB Avg`. The average I/O size in KB.
- `Qlen`. The queue length.
- `Util % Cur`. The percentage of current use.

- `Util % Avg.` The percentage of average use.

NOTES

- If no options are used, the command defaults to show reads, writes, and totals separately for all chunklets in intervals of 2 seconds.
- The `statch` command can only be used after the `setstatch` command has been issued to enable chunklet statistics. See [page 21.65](#) for information about the `setstatch` command.

COMMAND

statcmp

DESCRIPTION

The `statcmp` command displays Cache Memory Page (CMP) statistics by node or by virtual volume.

SYNTAX

`statcmp [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-v`

Specifies that CMP statistics by virtual volume instead of by node are displayed. By default, all virtual volumes are displayed unless the `-n` option is specified.

`-n <name|pattern>`

Specifies that statistics are displayed for virtual volumes matching the specified name or pattern. This option is only valid when used with the `-v` option.

`-domain {<domainname|pattern>}...`

Shows virtual volumes that are in domains with names that match one or more of the specified domains or patterns. If `-domain` is not specified, the virtual volumes that are in the current domain are shown. See the `currentdomain` parameter in the `setclienv` and `showclienv` commands. This option is only valid if the `-v` option is also specified.

`-d <seconds>`

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

`-iter <number>`

Specifies that CMP statistics are displayed a specified number of times as indicated by the `num` argument using an integer from 1 through 2147483647.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of CMP statistics for all nodes:

```
cli% statcmp -iter 1
12:14:49
Node Type      Accesses Hits      Hit%      Accesses Hits      Hit%
0      Read      0          0          0          0          0
0      Write      0          0          0          0          0
1      Read      0          0          0          0          0
1      Write      0          0          0          0          0

Page States
Node  Free   Clean  Writel  WriteN  WrtSched  Writing  Recov  RecFlush
LockBlk
  0  50225   7537    0       0       0         0       0       0
  1  52431   5318    0       0       0         0       0       0

Temporary and Page Credits
Node Node0   Node1   Node2   Node3   Node4   Node5   Node6   Node7
0    0      1877   ---    ---    ---    ---    ---    ---
1   1892    0     ---    ---    ---    ---    ---    ---
Press the enter key to stop...
```

NOTES

None.

COMMAND

statcpu

DESCRIPTION

The statcpu command displays CPU statistics for all nodes.

SYNTAX

statcpu [options <arg>]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-d <secs>

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

-iter <number>

Specifies that CPU statistics are displayed a specified number of times as indicated by the num argument using an integer from 1 through 2147483647.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays two iterations of CPU statistics for all nodes:

```
cli% statcpu -iter 2
15:11:03
node,cpu  user sys  idle intr/s ctxt/s
0,0       0    0   100
0,1       0    0   100
0,total   0    0   100      162    412

1,0       0    1    99
1,1       0    1    99
1,total   0    1    99      158    269
Press the enter key to stop...

15:11:05
node,cpu  user sys  idle intr/s ctxt/s
0,0       0    0   100
0,1      19    7    74
0,total  10    4    87      183    444

1,0       0    0   100
1,1       0    0   100
1,total   0    0   100      158    235
Press the enter key to stop...
```

NOTES

None.

COMMAND

statiscsi

DESCRIPTION

The `statiscsi` command displays the iSCSI statistics.

SYNTAX

`statiscsi [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d <secs>`

Looping delay in seconds `<secs>`. The default is 2.

`-iter <number>`

The command stops after a user-defined `<number>` of iterations.

`-nodes <nodelist>`

List of nodes for which the ports are included.

`-slots <slotlist>`

List of PCI slots for which the ports are included.

`-ports <portlist>`

List of port slots for which the ports are included. Lists are specified in a comma-separated manner such as: `-slots 0,1,2` or `-slots 0`.

`-counts`

Shows the counts. The default is to show counts/sec.

`-fullcounts`

Show the values for the full list of counters instead of the default packets and KBytes for the specified protocols. The values are shown in three columns:

- ◆ Current - Counts since the last sample.
- ◆ CmdStart - Counts since the start of the command.
- ◆ Begin - Counts since the port was reset.

This option cannot be used with the `-prot` option. If the `-fullcounts` option is not specified, the metrics from the start of the command are displayed.

`-prot <prot>[, <prot>, ...]`

Shows the statistics for the specified protocols. The available protocols are:

- ◆ Eth - Ethernet.
- ◆ IP - Internet Protocol (IP).
- ◆ TCP - Transmission Control Protocol (TCP).
- ◆ iSCSI - iSCSI.
- ◆ all - All protocols (default).

This option cannot be used with the `-fullcounts` option.

`-prev`

Shows the differences from the previous sample.

`-begin`

Shows the values from when the system was last initiated.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays basic iSCSI statistics collection:

```
cli% statiscsi
16:37:59 04/06/06 ----Receive---- ---Transmit---- -----Total-----
port  Protocol  Pkts/s KBytes/s  Pkts/s KBytes/s  Pkts/s KBytes/s Errs/s
0:4:1      Eth 15633.2   1116.7  30115.9  45164.4  45749.1  46281.1   0.0
0:4:1      IP 15632.7    522.6  30116.4  44020.8  45749.1  44543.3   0.0
0:4:1      TCP 15632.7    22.3  30116.4  43057.0  45749.1  43079.4   0.0
0:4:1      iSCSI 547.7      0.0   1477.3  50452.8  2025.0  50452.8   0.0
0:4:2      Eth 0.5        0.0    0.0     0.0     0.5     0.0       0.0
0:4:2      IP 15632.1   522.6  30115.2  44019.0  45747.2  44541.5   0.0
0:4:2      TCP 15632.1   22.3  30115.2  43055.3  45747.2  43077.6   0.0
0:4:2      iSCSI 547.7      0.0   1478.7  50509.7  2026.4  50509.7   0.0
1:3:1      Eth 11307.2    807.0  21348.2  32048.1  32655.4  32855.1   0.0
1:3:1      IP 11309.2   377.4  21345.7  31233.2  32654.9  31610.5   0.0
1:3:1      TCP 11309.2    15.5  21344.7  30548.7  32653.9  30564.1   0.0
1:3:1      iSCSI 459.3      0.0   1247.9  42630.9  1707.2  42630.9   0.0
1:3:2      Eth 0.5        0.0    0.0     0.0     0.5     0.0       0.0
1:3:2      IP 11308.5   377.3  21344.5  31231.3  32653.0  31608.7   0.0
1:3:2      TCP 11308.5    15.5  21343.5  30546.9  32652.0  30562.3   0.0
1:3:2      iSCSI 459.3      0.0   1247.8  42628.4  1707.1  42628.4   0.0
-----
Total      Eth 26941.4   1923.7  51464.1  77212.5  78405.5  79136.2   0.0
Total      IP 53882.5   1799.8  102921.7 150504.2 156804.2 152304.1   0.0
Total      TCP 53882.5    75.6  102919.7 147207.9 156802.2 147283.5   0.0
Total      iSCSI 2014.0    0.0   5451.7 186221.9  7465.7 186221.9   0.0
Press the enter key to stop...
```

The following example displays one iteration of iSCSI counts (with Ethernet and transmission control protocols):

```
cli% statiscsi -iter 1 -counts -prot Eth,TCP -begin
13:24:38 03/29/06 -----From last port reset-----
-----Receive---- ---Transmit---- -----Total-----
port  Protocol  Pkts  KBytes  Pkts  KBytes  Pkts  KBytes Errs
1:3:1      Eth 766373.0 1066175.9 394473.0 55171.4 1160846.0 1121347.2 1.0
1:3:1      TCP 722917.0 1016532.4 394441.0 30238.3 1117358.0 1046770.7 0.0
1:3:2      Eth 0.0      0.0      0.0     0.0     0.0     0.0       0.0
1:3:2      TCP 722917.0 1016532.4 394441.0 30238.3 1117358.0 1046770.7 0.0
-----
Total      Eth 766373.0 1066175.9 394473.0 55171.4 1160846.0 1121347.2 1.0
Total      TCP 1445834.0 2033064.8 788882.0 60476.6 2234716.0 2093541.4 0.0*
```


NOTES

The statistics for the TCP, IP, and iSCSI protocols listed are the combined values for both ports of the HBA. Each port reports the combined stats for both ports for these protocols. The total reported at the bottom for these protocols is therefore twice the actual values.

COMMAND

`statiscsisession`

DESCRIPTION

The `statiscsisession` command displays the iSCSI session statistics.

SYNTAX

`statiscsisession [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d <secs>`

Looping delay in seconds `<secs>`. The default is 2.

`-iter <number>`

The command stops after a user-defined number of iterations.

`-nodes <nodelist>`

List of nodes for which the ports are included.

`-slots <slotlist>`

List of PCI slots for which the ports are included.

`-ports <portlist>`

List of port slots for which the ports are included. Lists are specified in a comma-separated manner such as: `-slots 0,1,2` or `-slots 0`.

`-count`

Shows the counts. The default is to show counts/sec.

By default, the differences from initiating the command are shown. The following options change that behavior:

`-prev`

Shows the differences from the previous sample.

`-begin`

Shows the values from when the system was last initiated.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays the session statistics for the iSCSI:

```
cli% statiscsisession
15:31:35 04/04/06 --From start of statiscsisession command--
-----PDUs/s-----KBytes/s-----Errs/s-----
port -----iSCI_Name----- TPGT Cmd Resp Total Tx Rx Total Digest
TimeOut
1:3:1 ign.1991-05.com.microsoft:dt-ashok-xp.hq.3pardata.com 131 1.0 1.0 2.0 4.0 0.0 4.0 0.0 0.0
-----
Total - - 1.0 1.0 2.0 4.0 0.0 4.0 0.0 0.0
Press the enter key to stop...
```

NOTES

None.

COMMAND

statld

DESCRIPTION

The statld command displays read/write (I/O) statistics about logical disks in a timed loop.

SYNTAX

statld [options <arg>] [<LD_name|pattern>...]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-domain {<domain_name|pattern>}...

Shows only logical disks that are in domains with names that match any of the names or specified patterns. This option does not allow listing objects within a domain of which the user is not a member. Multiple domain names or patterns can be repeated using a comma-separated list (for example -domain <domain_name>,<domain_name>...).

-vv {<VV_name|pattern>}...

Show only logical disks that are mapped to virtual volumes with names that match any of names or patterns specified. Multiple volumes or patterns can be repeated using a comma-separated list (for example -vv <VV_name>,<VV_name>...).

-rw

Specifies that reads and writes are displayed separately. If this option is not used, then the total of reads plus writes is displayed.

-d <sec>

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

-iter <number>

Specifies that I/O statistics are displayed a specified number of times as indicated by the num argument using an integer from 1 through 2147483647.

`-begin`

Specifies that I/O averages are computed from the system start time. If not specified, the average is computed since the first iteration of the command.

`-idlep`

Specifies the percent of idle columns in the output.

`-sortcol <col> [, <dir>] [: <col> [, <dir>] ...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

`-filt <fspec>`

Specifies that statistics that fall below the threshold as specified by the `<fspec>` arguments where `<fspec>` is `<type>`, `<op>`, `<meas>`, `<val>`, are filtered out and not displayed. The type, operation, meas, and value arguments are separated with one comma.

`<type>`

The `type` argument can be specified with one of the following arguments:

`curs`

Specifies that only current statistics are displayed.

`avgs`

Specifies that only averages are displayed.

`maxs`

Specifies that only statics for maximum values are displayed.

`<op>`

The `operation` argument can be specified with one of the following arguments:

`r`

Specifies that read-only statistics are displayed.

`w`

Specifies that write-only statistics are displayed.

`t|rw`

Specifies that statistics for read and write totals are displayed.

`<meas>`

The `meas` argument can be specified with one of the following arguments:

`iops`

Specifies that I/O operations per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`bw`

Specifies that statistics for bandwidth in bytes per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`svct`

Specifies that statistics for service time in milliseconds are displayed.

`size`

Specifies that statistics for I/O operations in bytes are displayed.

`<val> [k|K] | [m|M] | [g|G]`

Specifies the minimum threshold using any integer. The integer can be optionally followed with `k` or `K` to indicate a multiple of 1,000, `m` or `M` to indicate a multiple of 1,000,000, or `g` or `G` to indicate a multiple of 1,000,000,000.

An example of this option in use is `-filt curs,r,iops,10k` that indicates that statistics for a device that has more than 10,000 current read-only I/O operations are displayed.

`-ni`

Specifies that statistics for only nonidle devices are displayed. This option is shorthand for the option `-filt curs,t,iops,0`.

SPECIFIERS

<LD_name|pattern>...

Only statistics are displayed for the specified logical disk or pattern. Multiple logical disks or patterns can be repeated (for example <LD_name> <LD_name>...).

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of I/O statistics for all logical disks:

```
cli% statld -iter 1
13:03:04 04/06/06 r/w I/O per second KBytes per sec  Svt ms IOSz KB          Util %
      Ldname      Cur  Avg  Max  Cur  Avg  Max  Cur  Avg  Cur  Avg  Qlen  Cur  Avg
      log0.0      t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      pdsld0.0    t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      admin.usr.0 t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      admin.usr.1 t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      Test.usr.0  t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      Test.usr.1  t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      log1.0      t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      pdsld1.0    t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      admin.usr.2 t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      admin.usr.3 t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      Test.usr.2  t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
      Test.usr.3  t    0    0    0    0    0    0  0.0  0.0  0.0  0.0    0    0    0
-----
      total      t    0    0          0    0          0.0  0.0  0.0  0.0    0    0    0
```

The columns in the example above are identified as follows:

- Ldname. The logical disk name.
- r/w. The I/O type. Values can be read (r), write (w), or read and write (t).
- I/O per second Cur. The current number of I/O per second.
- I/O per second Avg. The average number of I/O per second.
- KBytes per Max. The maximum number of KB per second.
- KBytes per Cur. The current number of KB per second.
- KBytes per Avg. The average number of KB per second.

- `Svt ms Max.` The maximum service time in milliseconds.
- `Svt ms Cur.` The current service time in milliseconds.
- `Svt ms Avg.` The average service time in milliseconds.
- `IOSz KB Cur.` The current I/O size in KB.
- `IOSz KB Avg.` The average I/O size in KB.
- `Qlen.` The queue length.
- `Util % Cur.` The percentage of current use.
- `Util % Avg.` The percentage of average use.

NOTES

- If no option is specified on the command line, the command defaults to display statistics totals.
- For this command KB = 1000 bytes.

COMMAND

statlink

DESCRIPTION

The statlink command displays statistics for link utilization for all nodes in a timed loop.

SYNTAX

statlink [options <arg>]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-d <sec>

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

-iter <number>

Specifies that internode link statistics are displayed a specified number of times (from 1 through 2147483647).

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of statistics for the internode link:

```
cli% statlink -iter 1
11:37:28 03/11/08          XCB_sent_per_second KBytes_per_second XCBSz_KB
Node      Q ToNode  Cur   Avg      Max   Cur   Avg   Max Cur   Avg
0         CM      0 15134 14911   15134 61951 61038 61951 4.1  4.1
0        PCI0     0 22336 21852   22336 79831 77128 79831 3.6  3.5
0        PCI1     1 15312 12103   19805 62106 63198 77324 4.0  4.1
0         L0      1 10339 10307   10339 69673 69384 69673 6.7  6.7

1         CM      1 16372 16189   16372 67020 66269 67020 4.1  4.1
1        PCI0     1 18384 17899   18384 75285 73305 75285 4.1  4.1
1        PCI1     1  5329  5336    5344   984   985   987 0.2  0.2
1         L3      0 10326 10295   10326 69346 69150 69346 6.7  6.7
```

NOTES

None.

COMMAND

statpd

DESCRIPTION

The statpd command displays the read/write (I/O) statistics for physical disks in a timed loop.

SYNTAX

statpd [options]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-i <pdid>

Specifies that statistics for a particular physical disk identified by an integer are displayed.

-w <WWN>

Specifies that statistics for a particular physical disk identified by WWN are displayed.

-nodes <nodelist>

Specifies that statistics for disks attached to the nodes from the `node list` are displayed. The `node list` is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1).

-slots <slotlist>

Specifies that statistics for disks attached to the slots from the `slot list` are displayed. The `slot list` is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1).

-ports <portlist>

Specifies that statistics for disks attached to the ports from the `port list` are displayed. The `port list` is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1).

-devinfo

Indicates the device disk type and speed.

`-rw`

Specifies that reads and writes are displayed separately. If this option is not used, then the total of reads plus writes is displayed.

`-d <secs>`

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

`-iter <number>`

Specifies that I/O statistics are displayed a specified number of times as indicated by the `number` argument using an integer from 1 through 2147483647.

`-begin`

Specifies that I/O averages are computed from the system start time. If not specified, the average is computed since the first iteration of the command.

`-idlep`

Specifies the percent of idle columns in the output.

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

`-filt <fspec>`

Specifies that statistics that fall below the threshold as specified by the `<fspec>` arguments where `<fspec>` is `<type>`, `<op>`, `<meas>`, `<val>`, are filtered out and not displayed. The `type`, `operation`, `meas`, and `value` arguments are separated with one comma.

<type>

The `type` argument can be specified with one of the following arguments:

`curs`

Specifies that only current statistics are displayed.

`avgs`

Specifies that only averages are displayed.

`maxs`

Specifies that only statics for maximum values are displayed.

<op>

The `operation` argument can be specified with one of the following arguments:

`r`

Specifies that read-only statistics are displayed.

`w`

Specifies that write-only statistics are displayed.

`t|rw`

Specifies that statistics for read and write totals are displayed.

<meas>

The `meas` argument can be specified with one of the following arguments:

`iops`

Specifies that I/O operations per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`bw`

Specifies that statistics for bandwidth in bytes per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`svct`

Specifies that statistics for service time in milliseconds are displayed.

`size`

Specifies that statistics for I/O operations in bytes are displayed.

`<val> [k|K] | [m|M] | [g|G]`

Specifies the minimum threshold using any integer. The integer can be optionally followed with `k` or `K` to indicate a multiple of 1,000, `m` or `M` to indicate a multiple of 1,000,000, or `g` or `G` to indicate a multiple of 1,000,000,000.

An example of this option in use is `-filt curs,r,iops,10k` that indicates that statistics for a device that has more than 10,000 current read-only I/O operations are displayed.

`-ni`

Specifies that statistics for only nonidle devices are displayed. This option is shorthand for the option `-filt curs,t,iops,0`.

`-p <pattern>`

Specifies that statistics for a pattern of physical disks are displayed. Patterns are used to filter and select the disks from which the statistics are collected. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (`<item>`). Multiple nodes are separated with a single comma (`1,2,3`). A range of nodes is separated with a hyphen (`0-7`). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (`<item>`). Multiple slots are separated with a single comma (`1,2,3`). A range of slots is separated with a hyphen (`0-7`). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (`<item>`). Multiple ports are separated with a single comma (`1,2,3`). A range of ports is

separated with a hyphen (0–5). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (<item>). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (<item>). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (<item>). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (<item>). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0–3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>`

Specifies that physical disks identified by their device IDs are selected for virtual volume and logical disk creation. Device IDs can be specified in a comma-separated list. Issue the `showpd -i` command for a list of physical disk device IDs for use with the `-devid` option.

`-devtype <device_type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example, `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of I/O statistics for all physical disks:

```
cli% statpd -iter 1
16:03:44 04/06/06 r/w I/O per second KBytes per sec  Svt ms IOSz KB          Util %
  Pdid   Port      Cur  Avg  Max  Cur  Avg  Max  Cur  Avg  Cur  Avg  Qlen  Cur  Avg
    0    1:0:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    1    0:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    2    1:0:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    4    1:0:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    5    0:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    6    1:0:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    7    0:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    8    1:0:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
    9    0:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   10    1:0:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   11    0:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   12    1:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   13    0:2:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   14    1:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   15    0:2:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   16    1:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   17    0:2:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   18    1:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   19    0:2:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   20    1:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   21    0:2:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   22    1:0:2    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
   23    0:2:1    t     0   0   0     0   0   0  0.0 0.0 0.0 0.0    0   0   0
-----
total          t     0   0           0   0           0.0 0.0 0.0 0.0    0   0   0
```

The columns in the example above are identified as follows:

- Pdid. The physical disk ID.
- Port. The disk's port.
- r/w. The I/O type. Values can be read (r), write (w), or read and write (t).
- I/O per second Cur. The current number of I/O per second.
- I/O per second Avg. The average number of I/O per second.
- KBytes per Max. The maximum number of KB per second.
- KBytes per Cur. The current number of KB per second.

- `KBytes per Avg.` The average number of KB per second.
- `Svt ms Max.` The maximum service time in milliseconds.
- `Svt ms Cur.` The current service time in milliseconds.
- `Svt ms Avg.` The average service time in milliseconds.
- `IOSz KB Cur.` The current I/O size in KB.
- `IOSz KB Avg.` The average I/O size in KB.
- `Qlen.` The queue length.
- `Util % Cur.` The percentage of current use.
- `Util % Avg.` The percentage of average use.

NOTES

Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been deprecated and replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.

COMMAND

statport

DESCRIPTION

The statport command displays read/write (I/O) statistics for ports.

SYNTAX

statport [options]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-data | -ctl | -both

Show data transfers only (-data), control transfers only (-ctl), or both data and control transfers (-both). If no option is included on the command line, the command shows data transfers only.

-nodes <odelist>

Displays statistics for ports attached to the nodes from the `node_list`. The `node_list` is specified as a series of integers separated by commas (for example 1,2,3). The list can also consist of a single integer (for example 1).

-slots <slotlist>

Displays statistics for ports attached to the slots from the `slot_list`. The `slot_list` is specified as a series of integers separated by commas (for example 1,2,3). The list can also consist of a single integer (for example 1).

-ports <portlist>

Displays statistics for ports from the `port_list`. The `port_list` is specified as a series of integers separated by commas (for example 1,2,3). The list can also consist of a single integer (for example 1).

-host

Includes only statistics for the host-connected (target) ports.

-disk

Includes only statistics for the disk-connected (initiator) ports.

`-rcfc`

Includes only statistics for Fibre Channel configured Remote Copy ports.

`-rcip`

Includes only statistics for Ethernet configured Remote Copy ports.

`-rw`

Display reads and writes separately. If this option is not used, then the total of reads plus writes is displayed.

`-d <secs>`

Sets the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

`-iter <number>`

Specifies that I/O statistics are displayed a specified number of times as indicated by the `num` argument using an integer from 1 through 2147483647.

`-idlep`

Specifies the percent of idle columns in the output.

`-begin`

Computes I/O averages from the system start time. If not specified, the average is computed since the first iteration of the command.

`-sortcol <col> [, <dir>] [: <col> [, <dir>] ...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

`-filt <fspec>`

Specifies that statistics that fall below the threshold as specified by the `<fspec>` arguments where `<fspec>` is `<type>`, `<op>`, `<meas>`, `<val>`, are filtered out and not displayed. The `-filt` option applies to data transfers only. The `type`, `operation`, `meas`, and `value` arguments are separated with one comma.

`<type>`

The `type` argument can be specified with one of the following arguments:

`curs`

Specifies that only current statistics are displayed.

`avgs`

Specifies that only averages are displayed.

`maxs`

Specifies that only statics for maximum values are displayed.

`<op>`

The `operation` argument can be specified with one of the following arguments:

`r`

Specifies that read-only statistics are displayed.

`w`

Specifies that write-only statistics are displayed.

`t|rw`

Specifies that statistics for read and write totals are displayed.

`<meas>`

The `meas` argument can be specified with one of the following arguments:

`iops`

Specifies that I/O operations per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`bw`

Specifies that statistics for bandwidth in bytes per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

svct

Specifies that statistics for service time in milliseconds are displayed.

size

Specifies that statistics for I/O operations in bytes are displayed.

<val> [k|K] | [m|M] | [g|G]

Specifies the minimum threshold using any integer. The integer can be optionally followed with k or K to indicate a multiple of 1,000, m or M to indicate a multiple of 1,000,000, or g or G to indicate a multiple of 1,000,000,000.

An example of this option in use is `-filt curs,r,iops,10k` that indicates that statistics for a device that has more than 10,000 current read-only I/O operations are displayed.

-ni

Show only nonidle devices. This option is shorthand for the option `-filt curs,t,iops,0`.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of I/O statistics for all ports:

cli% statport -iter 1																
16:16:08	04/06/06	r/w	I/O per second			KBytes per sec			Svt	ms	IOSz KB		Util %			
Port	D/C		Cur	Avg	Max	Cur	Avg	Max	Cur	Avg	Cur	Avg	Qlen	Cur	Avg	
0:0:1	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
0:0:2	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
0:2:1	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
0:2:2	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
1:0:1	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
1:0:2	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
1:1:1	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	
1:1:2	Data	t	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0	0	

total	Data	t	0	0		0	0		0.0	0.0	0.0	0.0	0	0	0	

The columns in the example above are identified as follows:

- Port. The port ID.
- D/C. The Data or Control transfers.
- r/w. The I/O type. Values can be read (r), write (w), or read and write (t).
- I/O per second Cur. The current number of I/O per second.
- I/O per second Avg. The average number of I/O per second.
- KBytes per Max. The maximum number of KB per second.
- KBytes per Cur. The current number of KB per second.
- KBytes per Avg. The average number of KB per second.
- Svt ms Max. The maximum service time in milliseconds.
- Svt ms Cur. The current service time in milliseconds.
- Svt ms Avg. The average service time in milliseconds.
- IOSz KB Cur. The current I/O size in KB.
- IOSz KB Avg. The average I/O size in KB.
- Qlen. The queue length.
- Util % Cur. The percentage of current use.
- Util % Avg. The percentage of average use.

NOTES

- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been deprecated and replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.
- For this command, KB = 1000 bytes.

COMMAND

`statrcopy`

DESCRIPTION

The `statrcopy` command displays statistics for Remote Copy volume groups.

SYNTAX

`statrcopy [options]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-d <secs>`

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

`-iter <number>`

Specifies that I/O statistics are displayed a specified number of times as indicated by the `num` argument using an integer from 1 through 2147483647.

`-u k|m|g`

Displays statistics as kilobytes (k), megabytes (m), or gigabytes (g). If no unit is specified, the default is kilobytes.

SPECIFIERS

None.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example shows statistics for sending links link0 and link1:

cli% statrcopy						
17:37:01 05/17/07						
Target	Node	Address	IPC	Total (KBytes)	-Throughput (KBytes per sec)-	
					Current	Average
amp1	0	10.100.33.96	RCs041	404761.15	4.95	4.95
amp1	1	10.101.33.96	RCs142	404661.63	3.30	3.30
				809422.78	8.25	8.25
amp2	0	10.100.33.11	RCs037	86845920.00	24612.95	24612.95
amp2	1	10.101.33.11	RCs138	85299712.32	23217.30	23217.30
				172145632.32	47830.26	47830.26
receive 0	receive		RCr039	983110.14	27.32	27.32
receive 1	receive		RCr140	823292.09	23.37	23.37
				1806402.23	50.69	50.69
Send				172955055.10	47838.51	47838.51
				174761457.34	47889.20	47889.20
Press the enter key to stop...						

The columns in this example provide the following information:

- **Target.** The system name of the actual link process that is running.
- **Node.** The node that the link is running on.
- **Address.** The IP address of the remote node.
- **IPC.** The mode of the Remote Copy link (r) Receive or (s) Send.
- **Total KBytes.** The amount of data that has been transmitted since the link was started, in KB.
- **Throughput (KBs).** The throughput on the link after the last iteration.
- **Current.** The amount of current transmitted since the last statrcopy iteration, in KB.
- **Average.** The average speed of the data transmission, in KB/s.

NOTES

- *This command repeats until directed to stop.*
- Within the context of this command, KB is 1000 bytes, MB is 1000KB, and GB is 1000MB.
- The numbers displayed by this command might be somewhat less than those displayed with `statport`, as `statrcopy` output does not include TCP/IP overhead.

COMMAND

statvlun

DESCRIPTION

The `statvlun` command displays statistics for virtual volumes and LUN host attachments.

SYNTAX

`statvlun [options <arg>]`

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-domain <domain_name|pattern>...`

Shows only VLUNs whose virtual volumes are in domains with names that match one or more of the specified domain names or patterns. This option does not allow listing objects within a domain of which the user is not a member. Multiple domain names or patterns can be repeated using a comma-separated list (for example `-domain <domain_name>,<domain_name>...`).

`-host <host_name|pattern>...`

Specifies the system host name, using up to 31 characters. This specifier can be repeated to display information for multiple hosts. If not specified, information for all hosts in the system is displayed. Multiple hosts or patterns can be repeated using a comma-separated list (for example `-host <host_name>,<host_name>...`).

`-v <VV_name|pattern>...`

Requests that only logical disks mapped to virtual volumes that match any of the specified names or patterns be displayed. Multiple volume names or patterns can be repeated using a comma-separated list (for example `-vv <VV_name>,<VV_name>,...`).

`-l <LUN|pattern>...`

Specifies that only exports to the specified LUN are displayed. Multiple LUNs or patterns can be repeated using a comma-separated list (for example `-l <LUN>,<LUN>...`).

`-nodes <nodelist>`

Specifies that export statistics from ports on the nodes as listed in the `node list` are displayed. The `node list` is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1).

`-slots <slotlist>`

Specifies that export statistics from ports on the slots as listed in the `slot list` are displayed. The `slot list` is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1).

`-ports <port_list>`

Specifies that export statistics from ports on the port slots as listed in the `port list` are displayed. The `port list` is specified as a series of integers separated by commas (1, 2, 3). The list can also consist of a single integer (1).

`-lw`

Lists host WWN or iSCSI names. This is especially useful when multiple WWNs/iSCSI names belonging to the same host are visible on the same port.

`-domainsum`

Sums up the VLUN statistics by domain so there is a single set of data per domain.

`-vvsum`

Specifies that sums for VLUNs of the same virtual volume are displayed.

`-hostsum`

Specifies that sums for VLUNs are grouped by host in the display. All VLUNs to unnamed hosts are added and displayed as a single set of data with a nameless host.

`-rw`

Specifies reads and writes to be displayed separately. If this option is not used, then the total of reads plus writes is displayed.

`-d <secs>`

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

`-iter <number>`

Specifies that virtual volume and LUN statistics are displayed a specified number of times as indicated by the `number` argument using an integer from 1 through 2147483647.

`-begin`

Specifies that I/O averages are computed from the system start time. If not specified, the average is computed since the first iteration of the command.

`-idlep`

Includes a percent idle column in the output.

`-sortcol <col> [, <dir>][:<col>[, <dir>]...]`

Sorts command output based on the column number `<col>`. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting `<dir>` as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

`-filt <fspec>`

Specifies that statistics that fall below the threshold as specified by the `<fspec>` arguments where `<fspec>` is `<type>`, `<op>`, `<meas>`, `<val>`, are filtered out and not displayed. The `type`, `operation`, `meas`, and `value` arguments are separated with one comma.

`<type>`

The `type` argument can be specified with one of the following arguments:

`curs`

Specifies that only current statistics are displayed.

`avgs`

Specifies that only averages are displayed.

`maxs`

Specifies that only statics for maximum values are displayed.

`<op>`

The `operation` argument can be specified with one of the following arguments:

`r`

Specifies that read-only statistics are displayed.

`w`

Specifies that write-only statistics are displayed.

`t|rw`

Specifies that statistics for read and write totals are displayed.

`<meas>`

The `meas` argument can be specified with one of the following arguments:

`iops`

Specifies that I/O operations per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`bw`

Specifies that statistics for bandwidth in bytes per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`svct`

Specifies that statistics for service time in milliseconds are displayed.

`size`

Specifies that statistics for I/O operations in bytes are displayed.

`<val> [k|K] | [m|M] | [g|G]`

Specifies the minimum threshold using any integer. The integer can be optionally followed with `k` or `K` to indicate a multiple of 1,000, `m` or `M` to indicate a multiple of 1,000,000, or `g` or `G` to indicate a multiple of 1,000,000,000.

An example of this option in use is `-filt curs,r,iops,10k` that indicates that statistics for a device that has more than 10,000 current read-only I/O operations are displayed.

`-ni`

Specifies that statistics for only nonidle devices are displayed. This option is shorthand for the option `-filt curs,t,iops,0`.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example displays one iteration of statistics for virtual volumes and LUN host attachments:

```
cli% statvln -iter 1
15:34:18 05/31/07 r/w I/O per second KBytes per sec Svt ms IOSz KB
Lun VVname Host Port      Cur  Avg  Max  Cur  Avg  Max Cur  Avg Cur  Avg Qlen
-----
--
      total          t    0    0          0    0          0.0 0.0 0.0 0.0    0
```

The columns in the example above are identified as follows:

- LUN. The LUN.
- VVname. The name of the virtual volume.
- Host. The host from which the VLUN is exported.
- Port. The port to which the VLUN is exported.
- r/w. The I/O type. Values can be read (r), write (w), or read and write (t).
- I/O per second Cur. The current number of I/O per second.
- I/O per second Avg. The average number of I/O per second.
- KBytes per Max. The maximum number of KB per second.
- KBytes per Cur. The current number of KB per second.
- KBytes per Avg. The average number of KB per second.
- Svt ms Max. The maximum service time in milliseconds.
- Svt ms Cur. The current service time in milliseconds.
- Svt ms Avg. The average service time in milliseconds.
- IOSz KB Cur. The current I/O size in KB.
- IOSz KB Avg. The average I/O size in KB.
- Qlen. The queue length.

NOTES

- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been deprecated and replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.
- A Domain column can be displayed by setting the `listdom` option or `TPDLISTDOM` environment variable. See the *InForm OS CLI Administrator's Manual* for information on setting environment variables and global options.

COMMAND

statvv

DESCRIPTION

The statvv command displays statistics for virtual volumes in a timed loop.

SYNTAX

statvv [options <arg>] [<VV_name_or_pattern>...]

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

-domain <domain_name|pattern>...

Shows only virtual volumes that are in domains with names that match one or more of the specified domain names or patterns. This option does not allow listing objects within a domain of which the user is not a member. Multiple domain names or patterns can be repeated using a comma-separated list (for example -domain <domain_name>,<domain_name>...).

-rw

Specifies reads and writes to be displayed separately. If this option is not used, then the total of reads plus writes is displayed.

-d <seconds>

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to an interval of two seconds.

-iter <number>

Specifies that I/O statistics are displayed a specified number of times as indicated by the num argument using an integer from 1 through 2147483647.

-sortcol <col> [, <dir>][:<col>[, <dir>]...]

Sorts command output based on the column number <col>. Columns are numbered from left to right, beginning with 0. You must specify a column number. In addition, you can specify the direction of sorting <dir> as follows:

`inc`

Sort in increasing order (default).

`dec`

Sort in decreasing order.

Multiple columns can be specified separated by a colon (:), and rows that have the same earlier columns will be sorted by the values in the later columns.

`-filt <fspec>`

Specifies that statistics that fall below the threshold as specified by the `<fspec>` arguments where `<fspec>` is `<type>`, `<op>`, `<meas>`, `<val>`, are filtered out and not displayed. The type, operation, meas, and value arguments are separated with one comma.

`<type>`

The `type` argument can be specified with one of the following arguments:

`curs`

Specifies that only current statistics are displayed.

`avgs`

Specifies that only averages are displayed.

`maxs`

Specifies that only statics for maximum values are displayed.

`<op>`

The `operation` argument can be specified with one of the following arguments:

`r`

Specifies that read-only statistics are displayed.

`w`

Specifies that write-only statistics are displayed.

`t|rw`

Specifies that statistics for read and write totals are displayed.

`<meas>`

The `meas` argument can be specified with one of the following arguments:

`iops`

Specifies that I/O operations per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`bw`

Specifies that statistics for bandwidth in bytes per second are displayed. If this argument is used, the minimum threshold value must be specified using the `value` argument.

`svct`

Specifies that statistics for service time in milliseconds are displayed.

`size`

Specifies that statistics for I/O operations in bytes are displayed.

`<val> [k|K][m|M][g|G]`

Specifies the minimum threshold using any integer. The integer can be optionally followed with `k` or `K` to indicate a multiple of 1,000, `m` or `M` to indicate a multiple of 1,000,000, or `g` or `G` to indicate a multiple of 1,000,000,000.

An example of this option in use is `-filt curs,r,iops,10k` that indicates that statistics for a device that has more than 10,000 current read-only I/O operations are displayed.

`-ni`

Specifies that statistics for only nonidle devices are displayed. This option is shorthand for the option `-filt curs,t,iops,0`.

SPECIFIERS

`<VV_name|pattern>...`

Only statistics are displayed for the specified virtual volume or pattern. Multiple volumes or patterns can be repeated (for example `<VV_name> <VV_name> . . .`). If not specified, all virtual volumes are listed.

RESTRICTIONS

None.

EXAMPLES

The following example displays I/O statistics for all virtual volumes:

```
cli% statvv -iter 1
15:31:21 05/31/07 r/w I/O per second KBytes per sec  Svt ms IOSz KB
      VVname      Cur  Avg  Max  Cur  Avg  Max Cur  Avg Cur  Avg Qlen
      admin    t    0    0    0    0    0    0 0.0 0.0 0.0 0.0  0
      test2    t    0    0    0    0    0    0 0.0 0.0 0.0 0.0  0
-----
      total    t    0    0          0    0          0.0 0.0 0.0 0.0  0
```

The columns in the example above are identified as follows:

- VVname. The virtual volume name.
- r/w. The I/O type. Values can be read (r), write (w), or read and write (t).
- I/O per second Cur. The current number of I/O per second.
- I/O per second Avg. The average number of I/O per second.
- KBytes per Max. The maximum number of KB per second.
- KBytes per Cur. The current number of KB per second.
- KBytes per Avg. The average number of KB per second.
- Svt ms Max. The maximum service time in milliseconds.
- Svt ms Cur. The current service time in milliseconds.
- Svt ms Avg. The average service time in milliseconds.
- IOSz KB Cur. The current I/O size in KB.
- IOSz KB Avg. The average I/O size in KB.
- Qlen. The queue length.

NOTES

- Virtual volumes might be accessed by both the host and by the system prefetcher. Virtual volume I/O statistics include both the external host accesses and system prefetcher accesses. To view statistics without access from the system prefetcher, use the `statvln -vvsum` command. See [statvln](#) on page 25.41 for details.

- In addition to external accesses by hosts, virtual volumes may be read internally by the system read-ahead prefetcher. The `statvv` data includes read-ahead accesses from the prefetcher, which can cause the read data to appear more than seen by the hosts. Use the `statvln -vvsum` command to see data for only accesses from the host.
- For this command KB = 1000 bytes.

26

Stop Commands

In this chapter

<code>stopcim</code>	26.2
<code>stoprcopy</code>	26.3
<code>stoprcopygroup</code>	26.5

COMMAND

`stopcim`

DESCRIPTION

The `stopcim` command stops the CIM server from servicing CIM requests.

SYNTAX

`stopcim [option]`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

Specifies that the operation is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

None.

RESTRICTIONS

None.

EXAMPLES

The following example stops the CIM server:

```
cli% stopcim
CIM server stopped successfully.
```

NOTES

By default, the CIM server is not started until the `startcim` command is issued.

COMMAND

`stoprcopy`

DESCRIPTION

The `stoprcopy` command disables the Remote Copy functionality for any started Remote Copy volume groups.

AUTHORITY

Super, Edit



NOTE: You need access to all domains in order to run this command.

SYNTAX

`stoprcopy [options]`

OPTIONS

`-f`

Specifies that any started copy will not ask for confirmation for the `-clear` option.

`-stopgroups`

Specifies that any started Remote Copy volume groups are stopped.

`-clear`

Specifies that configuration entries affiliated with the stopped mode are deleted.



CAUTION: Issuing the `stoprcopy -clear` command completely removes the Remote Copy setup and is NOT reversible.

SPECIFIERS

None.

RESTRICTIONS

If the `-stopgroups` option is not used, all groups must already be stopped.

EXAMPLES

The following example disables the Remote Copy functionality of all primary Remote Copy volume groups:

```
cli% stoprcopy -stopgroups
```

NOTES

- Unless the `-stopgroups` option is used, the command will fail if there are any Remote Copy groups that are started. If the `-clear` option has been used, the configuration is completely erased. Consequently, Remote Copy operations can not be restarted using only the `startrcopy` command. The configuration must be rebuilt. Therefore, the `-clear` option requires confirmation with the `-f` option, the `TPDFORCE` environment variable, or by interactively typing, `y`.

COMMAND

stoprcopygroup

DESCRIPTION

The stoprcopygroup command stops the Remote Copy functionality for the specified Remote Copy volume group.

SYNTAX

stoprcopygroup [option] <group_name>

AUTHORITY

Super, Edit

OPTIONS

-nosnap

In synchronous mode, this option turns off the creation of snapshots. This is useful if removercopygroup is to be run to remove Remote Copy. In asynchronous periodic mode, this option deletes any current synchronization snapshots.

SPECIFIERS

<group_name>

The name of the Remote Copy volume group to stop.

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLES

The following example stops Remote Copy for Group1:

```
cli% stoprcopygroup Group1
```

NOTES

- If a group's target has the mirror_config policy set and the group is a primary group, then this command is mirrored to that target and the corresponding secondary group is stopped. If the mirror_config policy is set and the group is a secondary, then this command fails.

- If the `mirror_config` policy is not set and this command is issued on a secondary group, then the corresponding primary group is also stopped as a result of this command.
- In `sync` mode, this command creates snapshots that are used for synchronizing the primary and secondary groups if `starttrcopygroup` is run later.

27

Sync Command

In this chapter

`syncrcopy`

27.2

COMMAND

`syncrcopy`

DESCRIPTION

The `syncrcopy` command manually synchronizes Remote Copy volume groups.

SYNTAX

`syncrcopy [options] <group_name>`

AUTHORITY

Super, Edit

OPTIONS

`-w`

Wait for synchronization to complete before returning to a command prompt.

`-n`

Do not save resynchronization snapshot. This option is only relevant for asynchronous periodic mode volume groups.



NOTE: Using the `-n` option requires a full synchronization at the next sync.

`-ovrd`

Force synchronization without prompting for confirmation, even if volumes are already synchronized. This option is only relevant for synchronous mode volume groups and can be used to resynchronize volumes that have become inconsistent.

SPECIFIERS

`<group_name>`

Specifies the name of the Remote Copy volume group to be synchronized. This name can be obtained using the `showrcopy` command, as described on [page 22.118](#).

RESTRICTIONS

Functionality of this command requires the 3PAR Remote Copy license. Contact your local service provider for more information.

EXAMPLE

The following example specifies that Remote Copy volume group `Group1` should be synchronized with its corresponding secondary volume group:

```
cli% syncrcopy Group1  
Synchronization request issued for group Group1
```

NOTES

- Mode (synchronous or asynchronous periodic) is set using the `creatercopy group` command. For information about modes and creating Remote Copy volume groups, see [creatercopygroup](#) on page 11.40.
- For information about setting targets, see [creatercopytarget](#) on page 11.42.

28

Tune Commands

In this chapter

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COMMAND

tunealdivv

DESCRIPTION

The `tunealdivv` command changes the layout of a virtual volume. This command was deprecated in the 2.2.4 release and will be changed or removed in a future release. Please use the `tunevv` command in the future.

SYNTAX

The `tunealdivv` command uses one of the following syntax conventions:

- `tunealdivv [options <arg>] <VV_name>`
- `tunealdivv restart [options <arg>] <VV_name>`
- `tunealdivv rollback [options <arg>] <VV_name>`

AUTHORITY

Super, Edit¹



NOTE: You need access to all domains in order to run this command.

SUBCOMMANDS

restart

Restarts a `tunealdivv` command operation that was previously interrupted because of component failure or user-initiated cancellation.

rollback

Rolls back a `tunealdivv` command operation that was previously interrupted. The `canceltask` command needs to run before the rollback.

OPTIONS

The following options can be used on all commands:

`-waittask`

Specifies that the command will wait for any created tasks to complete.

¹ Certain options require this additional privilege restriction as indicated.

`-f`

Forces the command. The command completes without prompting for confirmation.

`-dr`

Specifies that the command is a dry run and that no logical disks or virtual volumes are actually tuned.

`-keepld`

Specifies that unused space at the end of the set of region moves should not be deleted. The default is to reclaim the unused space if the region move completed successfully.

The following options cannot be used with the `restart` or `rollback` subcommands:

`-cpg <CPG_name>`

Name of the common provisioning group to which the snapshot data space is moved. When snapshot data space is tuned, the only permitted option is the `-cnt` option. If the `-cpg` option is specified, only the snapshot data space of a volume is tuned. If this option is not specified, only the USR space of a volume is tuned.

`-templ <template_name>`

Specifies that options from a template created using the `createtemplate` command (`<template_name>`) are applied to the virtual volumes being edited with the `tunealdivv` command, however, this option will only accept the use of a logical disk as the template object.

Options specified in the template are read-only or read/write. The read/write options can be overridden with new options at creation time but the read-only options cannot be overridden at creation time. Options not explicitly specified in the template take their default values, and all of these options are either read-only or read/write (using the `-nro` or `-nrw` options of the `createtemplate` command). Sizing options from the template are ignored. This command does not change the size of the virtual volume on which it acts.

`-t <RAID_type>`

Specifies the RAID type, `r0`, or `r1` or `r5`, of the virtual volume's logical disks. Enter `r0` for RAID 0, `r1` for RAID 10, or `r5` for RAID 50. If no RAID type is specified, the default is `r1` (RAID 10).

`-ssz <size_number_chunklet>`

Specifies the set size in the number of chunklets. The default set size is 2 for RAID 1, 4 for RAID 5. If not specified, the default set size is used by the `showspace` command to estimate space below.

`-rs <size>`

Specifies the number of sets in a row using an integer from 1 through 2147483647. If not specified, no row limit is imposed.

`-ss <sizeKB>`

Specifies the step size in kilobytes using 32, 64, 128, 256, or 512. If no value is entered, the step size defaults to 256 KB for RAID 0 and RAID 1, and 128 KB for RAID 5.

`-ha port|cage|mag`

Specifies that a RAID-1 or RAID-5 can support a failure of one port pair, one cage, or mag. For RAID-1 and RAID-5, the user default for snap admin and snap data areas is cage. For RAID-0 the default for the snap admin area is cage.

`-ch first|last`

Specifies the chunklet location preference, either `first` (attempt to use the lowest numbered available chunklets) or `last` (attempt to use the highest numbered available chunklets). If no argument is specified, the default location is `first`.

`-p <pattern>`

Specifies a pattern for disks. Patterns are used to select disks that are used for creating logical disks. If no pattern is specified, the option defaults to all disks of device type Fibre Channel (FC). If specified multiple times, each instance of the specified pattern adds additional candidate disks that match the pattern. The `-devtype` pattern cannot be used to mix Near Line (NL) and FC drives. The following arguments can be specified as patterns for this option:



NOTE: An item is specified as an integer, a comma-separated list of integers, or a range of integers specified from low to high.

`-nd <item>`

Specifies one or more nodes. Nodes are identified by one or more integers (`item`). Multiple nodes are separated with a single comma (1,2,3). A range of nodes is separated with a hyphen (0-7). The primary path of the disks must be on the specified node number(s).

`-st <item>`

Specifies one or more PCI slots. Slots are identified by one or more integers (`<item>`). Multiple slots are separated with a single comma (1,2,3). A range of

slots is separated with a hyphen (0–7). The primary path of the disks must be on the specified PCI slot number(s).

`-pt <item>`

Specifies one or more ports. Ports are identified by one or more integers (<item>). Multiple ports are separated with a single comma (1, 2, 3). A range of ports is separated with a hyphen (0–5). The primary path of the disks must be on the specified port number(s).

`-cg <item>`

Specifies one or more drive cages. Drive cages are identified by one or more integers (<item>). Multiple drive cages are separated with a single comma (1, 2, 3). A range of drive cages is separated with a hyphen (0–3). Disks must reside in the specified drive cage(s).

`-mg <item>`

Specifies one or more drive magazines. Drive magazines are identified by one or more integers (<item>). Multiple drive magazines are separated with a single comma (1, 2, 3). A range of drive magazines is separated with a hyphen (0–7). Disks must reside in the specified drive magazine(s).

`-pn <item>`

Specifies one or more disk positions within a drive magazine. Disk positions are identified by one or more integers (<item>). Multiple disk positions are separated with a single comma (1, 2, 3). A range of disk positions is separated with a hyphen (0–3). Disks must reside in the specified position(s).

`-dk <item>`

Specifies one or more physical disks. Disks are identified by one or more integers (<item>). Multiple disks are separated with a single comma (1, 2, 3). A range of disks is separated with a hyphen (0–3). Disks must match the specified ID(s).



NOTE: The following arguments, `-tc_gt`, `-tc_lt`, `-fc_gt`, `-fc_lt`, `-devid`, and `-devtype` are used to limit the disks that are used to create logical disks based on the characteristics of the disk drive.

`-tc_gt <number>`

Specifies that physical disks with total chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-tc_lt <number>`

Specifies that physical disks with total chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-fc_gt <number>`

Specifies that physical disks with free chunklets greater than the number specified are selected for virtual volume and logical disk creation.

`-fc_lt <number>`

Specifies that physical disks with free chunklets less than the number specified are selected for virtual volume and logical disk creation.

`-devid <ID>`

Specifies that physical disks identified by their device IDs are selected for virtual volume and logical disk creation. Device IDs can be specified in a comma-separated list. Issue the `showpd -i` command for a list of physical disk device IDs for use with the `-devid` option.

`-devtype <device_type>`

Specifies that physical disks must have the specified device type (FC for Fibre Channel or NL for Nearline) to be used for logical disk creation. Device types can be displayed by issuing the `showpd -i` command. When creating a logical disk, all physical disks must have the same device type.

`-rpm <number>`

Disks must be of the specified speed. Device speeds are shown in the `K_RPM` column of the `showpd -i` command.

Disks that satisfy all of the specified characteristics are used. For example, `-p -fc_gt 60 -fc_lt 230 -nd 2` specifies all the disks that have greater than 60 and less than 230 free chunklets and that are connected to node 2 through their primary path.

`-wait <ts>`

If the `createaldvv` command fails to create the logical disks, the `-wait` option specifies the number of seconds to wait before attempting to create logical disks again. Logical disks are not created when there is not a sufficient number of clean chunklets. If `-wait 0` is issued, space is allocated across any available clean chunklet. Specifying `-wait` provides time for chunklets to be cleaned. If this option is not used, the command attempts to create logical disks indefinitely.

`-verbose on|off`

Specifies that verbose output is either enabled (`on`) or disabled (`off`). Default is `off`.

`-cnt <number_of_VV>`

Specifies the number of identical virtual volumes to tune using an integer from 1 through 999. If not specified, one virtual volume is tuned.

`-restart`

Restart a `tunealddv` command call that was previously interrupted because of component failure, or because of user initiated cancellation. This option was deprecated in the 2.2.3 release and will be changed or removed in a future release.

`-rollback`

Rollback a `tunealddv` command call that was previously interrupted. The `canceltask` command needs to run before the rollback. This option was deprecated in the 2.2.3 release and will be changed or removed in a future release.

SPECIFIERS

`<VV_name>`

Specifies an existing virtual volume name.

RESTRICTIONS

- Use of this command requires a Dynamic Optimization license. Contact your local 3PAR representative for information.
- This command requires sufficient available physical space, equivalent to the user size of the volume being tuned.
- When changing the layout of a virtual volume, you can optionally apply arguments originally defined for logical disk creation through the `createtemplate` command by issuing the `tunealddv -templ <template_name>` command. The `-templ` option is only valid for logical disk template object types.

EXAMPLES

The following example shows how to use the `tunealddv` command to convert a virtual volume (`testvol`) from RAID 1 through RAID 5:

```
cli% tunealddv -t r5 testvol
Task 1 started.
```

The following example shows how to use the `tunealdevv` command to change the availability level of a virtual volume (`testvol`) to `cage`. Note that because the default availability parameter setting (`-ha`) for `tunealdevv` is `cage`, it is not necessary to explicitly specify `cage`-level availability when issuing this command.

```
cli% tunealdevv testvol
Task 2 started.
```

The following example shows how to use the `tunealdevv` command to add a disk filter that specifies that the logical disks supporting virtual volume `testvol` must use chunklets on physical disks 20 and 31 only.

```
cli% tunealdevv -p -dk 20,31 testvol
Task 3 started.
```

The following examples shows how to start, cancel, and then restart a `tunealdevv` operation on virtual volume `testvol`:

```
cli% tunealdevv -t r5 -ha mag testvol
Task 1 started.
```

```
cli% canceltask 1
Are you sure you want to cancel task 1?
select q=quit y=yes n=no: y
```

```
cli% tunealdevv -restart testvol
Task 2 started.
```

NOTES

- This command was deprecated in the 2.2.4 release and will be changed or removed in a future release. Please use the `tunevv` command in the future.
- Automatic chunklet selection for relocations will prefer selection of chunklets on physical disks with the same device type as the source. Use the `-p devtype` option to override this default. Use `showpd -i` to see the device types of physical disks in the system.
- When canceling a `tunealdevv` task, the `canceltask` command can return before a cancellation is completed. Thus, resources reserved for the task cannot be immediately available. This can prevent actions like restarting the canceled `tunealdevv` task. Use the

`waittask` command in your scripts to ensure orderly completion of the `tunealdrv` cancellation before taking other actions. See [waittask](#) on page 31.2 for details about using the `waittask` command.

COMMAND

tunepd

DESCRIPTION

The `tunepd` command identifies physical disks with high service times and optionally executes load balancing.

SYNTAX

The syntax for the `tunepd` command can be one of the following:

- `tunepd [options <arg>] maxsvct <msecs>|highest`
- `tunepd [options <arg> avgsvct <msecs>|highest`

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS



NOTE: If the `-nodes`, `-slots`, `-ports`, or `-vv` options are not specified, all physical disks are included.

`-nodes <nodelist>`

Specifies that physical disks attached to the node from the node list are included for statistic sampling. The node list is specified as a series of integers separated by commas (1, 2, 3). The node list can also consist of a single integer (1).

`-slots <slotlist>`

Specifies that physical disks attached to the slots from the slot list are included for statistic sampling. The slot list is specified as a series of integers separated by commas (1, 2, 3). A list can also consist of a single integer (1).

`-ports <portlist>`

Specifies that physical disks attached to the ports from the port list are included for statistic sampling. The port list is specified as a series of integers separated by commas (1, 2, 3). A list can also consist of a single integer (1).

`-vv <VV_name>`

Specifies that the physical disks used by the indicated virtual volume name are included for statistic sampling.

`-d <seconds>`

Specifies the interval, in seconds, that statistics are sampled using an integer from 1 through 2147483. If no interval is specified, the option defaults to 30 seconds.

`-iter <number>`

Specifies that I/O statistics are sampled a specified number of times as indicated by the `number` argument using an integer greater than 0. If 0 is specified, I/O statistics are looped indefinitely. If this option is not specified, the command defaults to 1 iteration.

`-freq <minutes>`

Specifies the interval, in minutes, that the command enters standby mode between iterations using an integer greater than 0. If this option is not specified, the number of iterations is looped indefinitely.

`-vvlayout`

Specifies that the layout of the virtual volume is displayed. If this option is not specified, the layout of the virtual volume is not displayed.

`-portstat`

Specifies that statistics for all disk ports in the system are displayed. If this option is not specified, statistics for ports are not displayed.

`-pdstat`

Specifies that statistics for all physical disk, rather than only those with high service times, are displayed. If this option is not specified, statistics for all disks are not displayed.

`-chstat`

Specifies that chunklet statistics are displayed. If not specified, chunklet statistics are not displayed. If this option is used with the `-movech` option, either `on` or `force` must be specified. See [Restrictions](#) on page 28.12 for conditions on using the `-chstat` option.

`-maxpd <number>`

Specifies that only the indicated number of physical disks with high service times are displayed. If this option is not specified, 10 physical disks are displayed.

`-movech auto|manual`

Specifies that if any disks with unbalanced loads are detected that chunklets are moved from those disks for load balancing.

`auto`

Specifies that the system chooses source and destination chunklets. If not specified, you are prompted for selecting the source and destination chunklets.

`manual`

Specifies that the source and destination chunklets are manually entered by you.

SPECIFIERS

`maxsvct <msec>|highest`

Specifies that either the maximum service time threshold (`<msec>`) that is used to discover overutilized physical disks, or the physical disks that have the highest maximum service times (`highest`). If a threshold is specified, then any disk whose maximum service time exceeds the specified threshold is considered a candidate for load balancing.

`avgsvct <msec>|highest`

Specifies that either the average service time threshold (`<msec>`) that is used to discover overutilized physical disks, or the physical disks that have the highest average service time (`highest`). If a threshold is specified, any disk whose average service time exceeds the specified threshold is considered a candidate for load balancing.

RESTRICTIONS

- Use of this command requires a Dynamic Optimization license. Contact your local 3PAR representative for information.
- The system does not allow multiple `tunepd` processes with the `-chstat on` or `-chstat force` options to run concurrently.
- If one or more chunklet statistics collection processes are running, the `tunepd` command exits to prevent possible `tunepd -chstat on` processes running simultaneously.
- Use the `-chstat force` option only when you have verified that no other `tunepd` processes are running.

EXAMPLES

In the following example, physical disks with average service times exceeding 50 milliseconds are identified and their chunklets automatically relocated to rebalance the physical disks' load.

```
cli% tunepd -vvlayout -chstat -movech auto avgsvct 50
```

```
Collecting I/O statistic for physical disks (PDs) ...
```

PdId	Pos	APort	BPort	Iops	Kbps	Svct(ms)	IOSz(KB)
29	1:3:3	0:4:1	1:5:1*	231.9	8668.8	87.0	37.4

The following physical disks were identified as candidates for load balancing: 29

```
Layout of related virtual volumes (on candidate physical disks).
```

VvId	VvName	LdId	LdName	Avail	RAID	PdId
0	admin	5	admin.usr.2	cage	1	0,2,4,6,8,10,12,14,17,19 23,25,27,29
1	vv0	8	vv0.usr.2	cage	1	0,2,4,6,8,10,12,14,17,19 23,25,27,29
2	vv1	11	vv1.usr.1	mag	5	2,6,19,29

```
Enable statistic collection for chunklets on PD 29
```

```
Collecting statistic for chunklets of candidate PDs...
```

```
Disable statistic collection for chunklets on PD 29
```

```
Statistic of chunklets of candidate PDs:
```

PdId	PdCh	LdId	LdName	LdCh	Iops	Kbps	Svct(ms)	IOSz(KB)
29	20	8	vv0.usr.2	29	22.8	842.7	109.9	37.0
29	19	8	vv0.usr.2	17	22.0	842.7	113.7	38.2
29	18	8	vv0.usr.2	5	7.8	282.3	117.0	36.3
29	26	11	vv1.usr.1	23	42.0	1561.6	77.0	37.2
29	25	11	vv1.usr.1	19	37.8	1401.4	70.2	37.1
29	24	11	vv1.usr.1	15	39.5	1454.1	73.3	36.8
29	23	11	vv1.usr.1	11	35.3	1333.6	73.1	37.7
29	22	11	vv1.usr.1	7	26.5	1018.1	76.8	38.4

```
Statistic of Logical disks of candidate PDs:
```

PdId	LdId	LdName	Iops	Kbps	Svct(ms)	IOSz(KB)
29	8	vv0.usr.2	52.6	1967.8	112.5	37.4
29	11	vv1.usr.1	181.1	6768.8	74.0	37.4

```
Statistic of candidate physical disks:
```

PdId	Pos	APort	BPort	Iops	Kbps	Svct(ms)	IOSz(KB)
29	1:3:3	0:4:1	1:5:1*	233.7	8736.6	82.7	37.4

```
Physical Disk 29: The following chunklets have been marked for moving: 26
```

```
Pass 1: Dryrun moving chunklets:
```

Move	Status	qset	grow	qcon	qlocal	qlost
29:26-10:16	source and destination are valid	mag	0	2	true	false

```
Pass 2:
```

Move	Status	qset	grow	qcon	qlocal	qlost
29:26-10:16	ch was moved	mag	0	2	true	false

Note that physical disk 29 is identified as matching the search criterion of average service times greater than 50 milliseconds and its chunklets are relocated.

NOTES

- When the `-movech auto` or `-movech manual` option is specified the system only identifies (auto mode) or recommends (manual mode) source chunklets for which there are destination chunklets that retain the availability of the source chunklets' logical disks.
- You can either issue separate instances of the `tunepd` command to identify load balancing candidates and relocate chunklets, or execute both tasks with one instance of the `tunepd` command.
- Previous options `-n <node_list>`, `-s <slot_list>`, and `-p <port_list>` have been deprecated in 2.2.3 and replaced with `-nodes <node_list>`, `-slots <slot_list>`, and `-ports <port_list>`.

COMMAND

tunetpvv

DESCRIPTION

This command was deprecated in the 2.2.3 release and will be changed or removed in a future release.

The `tunetpvv` command allows the RAID and Availability characteristics of an exiting Thin Provisioned Virtual Volume to be dynamically modified.

SYNTAX

```
tunetpvv [-f] -cpg <CPG_name> [options <arg>] <VV_name>
```

AUTHORITY

Edit

OPTIONS

-f

Forces the command. The command completes without prompting for confirmation.

-cpg <CPG_name>

Specifies the common provisioning group to which the snapshot data space is moved.

-waittask

Indicates to wait for created tasks to complete.

-dr

Specifies that the command is a dry run and that no logical disks or virtual volumes are actually tuned.

-cnt <number_of_VV>

Specifies the number of identical virtual volumes to tune using an integer from 1 through 999. By default, one virtual volume is tuned.

SPECIFIERS

<VV_name>

Specifies an existing virtual volume name.

RESTRICTIONS

- Use of this command requires a Dynamic Optimization license. Contact your local 3PAR representative for information.
- This command requires sufficient available physical space with the same owner or backup node as the space it is being copied from.

EXAMPLES

The following example shows how to use the `tunetpvv` command to change the RAID type of a thin provisioned virtual volume (`testvol`) from `cpg1`, which is originally `cpg1`, which is of RAID 1.

```
cli% createcpg -t r5 cpg2

cli% tunetpvv -cpg cpg2 testvol

Are you sure you want to tune VV 'testvol' ?

select y=yes n=no: y
Task 1 started.
```

The following example shows how to use the `tunetpvv` command to increase the availability level of a thin provisioned virtual volume (`testvol`). Note that there is mag availability because `testvol` was originally on `cpg1`, which is created with option (`-ha mag`). To increase cage availability, create a common provisioning group with cage availability and tune `testvol` to the associated CPG.

```
cli% createcpg cpg3
cli% tunetpvv -cpg cpg3 testvol
Are you sure you want to tune VV 'testvol'?
select y=yes n=no: y
Task2 started.
```

The following example shows how to tune multiple virtual volumes together. `Testvol.0`, `testvol.1` and `testvol.2` are the three virtual volumes to be tuned:

```
cli% tunetpvv -cnt 3 testvol
Are you sure you want to tune VV 'testvol'?
select y=yes n=no: y
Task 3 started.
```


NOTES

- When canceling a `tunetpvv` command task, the `canceltask` command might return before a cancellation is complete. Thus, resources reserved for the task might not be immediately available. This prevents actions like attempting another tune on the same virtual volume. Scripts should use the `waittask` command in order to ensure orderly completion of the `tunetpvv` command cancellation prior to taking other actions.

COMMAND

tunevv

DESCRIPTION

The `tunevv` command is used to change the properties of a virtual volume that was created with either the `createvv` or `createtpvv` command by associating it with a different CPG.

SYNTAX

The `tunevv` command uses one of the following syntax conventions:

- `tunevv usr_cpg <CPG> [options <arg>] <VV_name>`
- `tunevv snp_cpg <CPG> [options <arg>] <VV_name>`
- `tunevv restart [options <arg>] <VV_name>`
- `tunevv rollback [options <arg>] <VV_name>`

AUTHORITY

Edit¹

SUBCOMMANDS

`usr_CPG <CPG>`

Moves the logical disks being used for user space to the specified CPG.

`snp_CPG <CPG>`

Moves the logical disks being used for snapshot space to the specified CPG. This option cannot be used on thinly provisioned virtual volumes (TPVVs).

`restart`

Restarts a `tunevv` command call that was previously interrupted because of component failure, or because of user initiated cancellation. This cannot be used on thinly provisioned virtual volumes.

`rollback`

Returns to a previously issued `tunevv` operation call that was interrupted. The `canceltask` command needs to run before the rollback. This cannot be used on TPVVs.

1 Certain options require this additional privilege restriction as indicated.

OPTIONS

`-f`

Forces the command. The command completes without prompting for confirmation.

`-waittask`

Specifies that the command will wait for any created tasks to complete.

`-dr`

Specifies that the command is a dry run and that no logical disks or virtual volumes are actually tuned.

The following option is used when the `<usr_CPG>` and `<snp_CPG>` subcommands are specified:

`-cnt <count>`

Specifies the number of identical virtual volumes to tune using an integer from 1 through 999. For thinly provisioned virtual volumes, this must be an integer between 1 and 64. If not specified, one virtual volume is tuned.

SPECIFIERS

`<VV_name>`

Specifies an existing virtual volume name.

RESTRICTIONS

Use of this command requires a Dynamic Optimization license. Contact your local 3PAR representative for information.

EXAMPLES

In the following example, the logical disks used for user space are moved to CPG `cpg_sn1.0_p` for virtual volume `nf_st_tp_22.0`:

```
cli% tunevv usr_cpg cpg_sn1.0_p nf_st_tp_22.0
Task 999 started
```

NOTES

When canceling a `tunevv` command task, the `canceltask` command can return before a cancellation is completed. Therefore, resources reserved for the task might not be immediately available. This can prevent actions like restarting the canceled `tunevv` command task. Scripts should use the `waittask` command in order to ensure orderly completion of the `tunevv`

command cancellation before taking other actions. See [waittask](#) on page 31.2 for details about using the `waittask` command.

29

Update Commands

In this chapter

updatesnapspace	29.2
updatevv	29.4

COMMAND

updatesnapspace

DESCRIPTION

The `updatesnapspace` command starts a non-cancellable task to update the actual snapshot space used by a virtual volume. By default, this command updates the space used by all volumes on the system. The amount of time required for the task to complete depends on the sizes of the base volumes and snapshots in the system. Monitor the task using the `showtask` command.

SYNTAX

`updatesnapspace [<VV_name>...<pattern>...]`

AUTHORITY

Super, Edit

SPECIFIERS

`<VV_name>...`

Specifies the virtual volume name to update. This specifier can be repeated to display the task ID about multiple virtual volumes. This specifier is not required on the command line. If not specified, all virtual volumes in the system are updated.

`<pattern>...`

Specifies that the virtual volumes matching the specified glob-style pattern is updated. This specifier can be repeated to display task ID about multiple virtual volumes. This specifier is not required on the command line. If not specified, all virtual volumes in the system are updated. See [Glob-Style Pattern](#) on page 2.4 for more information.

RESTRICTIONS

None.

EXAMPLES

The following example displays the actual snapshot space used by all virtual volumes:

```
cli% updatesnapspace
Task 2 has been started to calculate actual space usage.
```

Issuing a `waittask` command displays the information about the task in process or if it has been processed:

```
cli% waittask 2
Task 2 done
```

The following example displays the task information using `-d <task_id>`:

```
cli% showtask -d 2
Id          Type          Name Status Phase Step -----StartTime-----
-----FinishTime-----
  2 snapspace_accounting ss_accounting Done   0/0   0/0 Thu Sep 22 18:43:35 PDT
2005 Thu Sep 22 18:43:35 PDT 2005

Detailed status:
{Thu Sep 22 18:43:35 PDT 2005} Created      task.
{Thu Sep 22 18:43:35 PDT 2005} Started      snapshot usage data collection proces
s for VVs
{Thu Sep 22 18:43:35 PDT 2005} Updated      snapshot usage data for VV emaildb
{Thu Sep 22 18:43:35 PDT 2005} Updated      snapshot usage data for VV www
{Thu Sep 22 18:43:35 PDT 2005} Updated      snapshot usage data for VV snapname
{Thu Sep 22 18:43:35 PDT 2005} Finished     snapshot usage data collection process
```

NOTES

- If one or more virtual volume names or patterns are specified, only the specified virtual volumes are updated. If virtual volume names are not specified, all virtual volumes are updated.
- See [showtask](#) on page 22.148 for more information.
- See [waittask](#) on page 31.2 for more information.

COMMAND

updatevv

DESCRIPTION

The `updatevv` command updates a snapshot virtual volume with a new snapshot.

SYNTAX

`updatevv [options] <VV_name>...`

AUTHORITY

Super, Edit

OPTIONS

`-ro`

Specifies that if the specified virtual volume (<VV_name>) is a read/write snapshot the snapshot's read-only parent volume is also updated with a new snapshot. If this option is not specified, the virtual volume, as indicated with the <VV_name> specifier, is replaced by a new snapshot. See *Notes* for additional information.

`-anyid`

Specifies that any virtual volume ID can be used for the new snapshot(s).

`-f`

Specifies that the command is forced. If this option is not used, the command requires confirmation before proceeding with its operation.

SPECIFIERS

<VV_name>...

Specifies the name(s) of the snapshot virtual volume(s) to be updated. If multiple vv names are specified, they must be of same type (read-only or read-write) and group consistent snapshots are taken.

RESTRICTIONS

For each snapshot virtual volume name specified, the `updatevv` command first verifies in your Access Control List (ACL) that you have permission to run the `updatevv` command on the specified virtual volumes. For information on viewing and setting your ACL, see [showuseracl](#) on page 22.159 and [setuseracl](#) on page 21.78.

EXAMPLES

The following example displays the snapshot update of snapshot virtual volume `avvro`:

```
cli% updatevv -f avvro
Updating VV avvro
add ro snap avvro, nvid = 0x110003, parent 0x6c054000, llptp 915b4e70,
hatstat 915b4e68
```

NOTES

- The `updatevv` command attempts to use the same virtual volume IDs for new snapshots as the snapshots that they replace so that the new virtual volumes have the same WWNs as the originals (this might be important for hosts that use the virtual volume WWN to identify the virtual volume). However, between the removal of the original snapshot and the creation of the new snapshot it is possible that another virtual volume might have been created with the same ID causing the creation of the new snapshot to fail. If the `-anyid` option is specified, the command then creates the snapshot with any available ID.

Because new virtual volumes, by default, are assigned the lowest ID available, virtual volumes that are updated with the `updatevv` command should be assigned large IDs (using the `-i` option to the `createaldivv` command) to reduce the likelihood that their IDs are taken during the `updatevv` command operation.

- After the `updatevv` command is executed, all VLUNs associated with the specified virtual volume name are removed. The command then updates the snapshots as follows:
 - ◆ If the `-ro` option is not specified, or if the specified virtual volume name is a read-only snapshot, the command removes the snapshot, and creates a new snapshot of the same name and of the same parent.
 - ◆ If the `-ro` option is specified and the specified virtual volume name is a read/write snapshot, the virtual volume is removed and its read-only parent is replaced by a new read-only snapshot of the same name. Then, a new read/write snapshot is created of the new read-only snapshot.

The command then re-creates all the VLUNs associated with the specified virtual volume name.

30

Upgrade Commands

In this chapter

`upgradecage`

30.2

`upgradedpd`

30.4

COMMAND

upgradecage

DESCRIPTION

The upgradecage command downloads new firmware into the specified cage.

SYNTAX

The syntax for the upgradecage command can be one of the following:

- upgradecage [options <arg>] <cagename>...
- upgradecage [options <arg>] -a

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

-a

Specifies that all drive cages are upgraded with new firmware (<cagename> should not be specified).

-minlevel <revlevel>

Specifies the minimum firmware level that the cage firmware must be at for the upgrade to be allowed.

-maxlevel <revlevel>

Specifies the maximum firmware level that the cage firmware must be at for the upgrade to be allowed.

-model <model>

Only upgrade cages of specified model. Use showcage command to find out the correct model for the cages. The model can be DC2, DC3, or DC4.

`-file <fname>`

Use firmware in file `<fname>` , where `<fname>` is the full path name of the file on the node. The default is to use the firmware that is marked current in the firmware database (see the `showfirmwaredb` command).

SPECIFIERS

`<cagename>`

Specifies the name displayed in the Name column using the `showcage` command.

RESTRICTIONS

None.

EXAMPLES

The following example displays a cage with firmware level of 4.41 upgrading to 4.42:

```
cli% upgradecage -a

Upgrading cage cage0 cpuA from rev 1.46 to revision in file /opt/tpd/fw/cage/dc2/lbod_fw.bin-2.05.
Upgrading cage cage1 cpuA from rev 1.46 to revision in file /opt/tpd/fw/cage/dc2/lbod_fw.bin-2.05.
Upgrading cage cage2 cpuA from rev 1.46 to revision in file /opt/tpd/fw/cage/dc2/lbod_fw.bin-2.05.
Upgrading cage cage3 cpuA from rev 03 to revision in file /opt/tpd/fw/cage/dc3/dc3_fw.bin-04.
Skipping cage cage4 cpuA already up to date at rev 2.05
Skipping cage cage5 cpuA & cpuB already up to date at rev 04
```

NOTES

- Before executing the `upgradecage` command, issue the `showcage` command to obtain the names of the drive cages in the system.
- When the `upgradecage` command is issued, the drive cage becomes temporarily unavailable for commands such as `showcage -d`. The cage automatically restarts following the firmware update, and may briefly disrupt the loops during the restart. It is recommended `showcage` be used approximately one minute after the update completes to ensure both loops to the cage are available again.

COMMAND

upgradepd

DESCRIPTION

The `upgradepd` command upgrades the physical disk firmware.

SYNTAX

```
upgradepd [-f] [-skiptest] {-a | -w <WWN>... | <pdid>...}
```

AUTHORITY

Service



NOTE: You need access to all domains in order to run this command.

OPTIONS

`-f`

Upgrades the physical disk firmware without requiring confirmation.

`-skiptest`

Skips the 10 second diagnostic test normally completed after each physical disk upgrade.

`-a`

Specifies that all physical disks that have valid IDs and whose firmware is not current are upgraded. If this option is not specified, then either the `-w` option or `PD_ID` specifier must be issued on the command line.

`-w <WWN>...`

Specifies that the firmware of either one or more physical disks, identified by their WWNs, is upgraded. If this option is not specified, then either the `-a` option or `PD_ID` specifier must be issued on the command line.

SPECIFIERS

`<PD_ID>...`

Specifies that the firmware of either one or more physical disks identified by their IDs (`PD_ID`) is upgraded. If this specifier is not used, then the `-a` option or `-w` option must be issued on the command line.

RESTRICTIONS

None.

EXAMPLES

The following example displays the upgrade of all physical disks:

```
cli% upgradepd -a
```

NOTES

- Physical disks can be upgraded while I/O is occurring.
- If a disk with RAID 0 chunklets is upgraded, I/O to those chunklets at the time of the upgrade results in data loss. This is not applicable to RAID 1 and RAID 5 logical disks.
- Specify the `-w` option when upgrading unadmitted physical disks.

31

Wait Command

In this chapter

`waittask`

31.2

COMMAND

`waittask`

DESCRIPTION

The `waittask` command asks the CLI to wait for a task to complete before proceeding. The command automatically notifies you when the specified task is finished.

SYNTAX

```
waittask -v <task_ID>}| [<task_ID>...]
```

AUTHORITY

Super, Service, Edit, Browse

OPTIONS

`-v <task_ID>`

Displays the detailed status of the task specified by `<task_ID>` as it executes. When the task completes, this command exits.

SPECIFIERS

`[<task_ID>...]`

Indicates one or more tasks to wait for using their task IDs. When no task IDs are specified, the command waits for all tasks to complete.

RESTRICTIONS

None.

EXAMPLES

The following example shows how to wait for a task using the task ID. When successful, the command returns only after the task completes.

```
cli% waittask 1
Task 1 done
```

NOTES

- See the *InForm OS CLI Administrator's Manual* for additional information and examples regarding task management and task management commands.
- This command returns an error if any of the tasks it is waiting for fail.

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Revision History

Release Level	Revision Summary
320-200114 Rev A March 2009	Added information about the InServ F-Class Storage Servers. This document was previously released under part number 320-1323.

